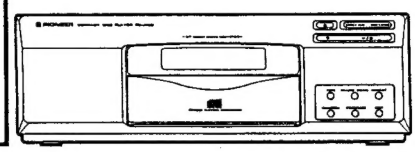
PIONEER®
The Art of Entertainment

Service Manual



ORDER NO.
RRV1020

COMPACT DISC PLAYER

PD-J520

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	Remarks
	PD-J520		
AEMXK	○	AC power supplied from power transformer's secondary of other system component	
ABXK	○		

- **This product is a system(s) component.**
  This product does not function properly when independent; to avoid malfunctions, be sure to connect it to the prescribed system component(s), otherwise damage may result.

CONTENTS

CHAPTER 1
1.1 SAFETY INFORMATION ····· 1-2
1.2 PANEL FACILITIES ····· 1-3
1.3 SPECIFICATIONS ····· 1-4
1.4 BLOCK DIAGRAM ····· 1-4
1.5 FL INFORMATION ····· 1-5
1.6 ADJUSTMENTS ····· 1-6
1.7 PARTS LIST FOR PACKING AND EXPLODED VIEWS ····· 1-15
1.8 PCB PARTS LIST ····· 1-16
CHAPTER 2
2.1 PACKING AND EXPLODED VIEWS ····· 2-1
2.2 SCHEMATIC AND PCB CONNECTION DIAGRAM ····· 2-5

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CHAPTER 1
1.1 SAFETY INFORMATION

(FOR EUROPEAN MODEL ONLY)

VARO!
AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

ADVERSEL:
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSAETTELSE FOR STRÅLING.

VARNING!
OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.

LASER
Kuva 1
Lasersateilyn
varoitusmerkki

WARNING!
DEVICE INCLUDES LASER DIODE WHICH EMITS INVISIBLE INFRARED RADIATION WHICH IS DANGEROUS TO EYES. THERE IS A WARNING SIGN ACCORDING TO PICTURE 1 INSIDE THE DEVICE CLOSE TO THE LASER DIODE.

LASER
Picture 1
Warning sign for
laser radiation

IMPORTANT
THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 1.
SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

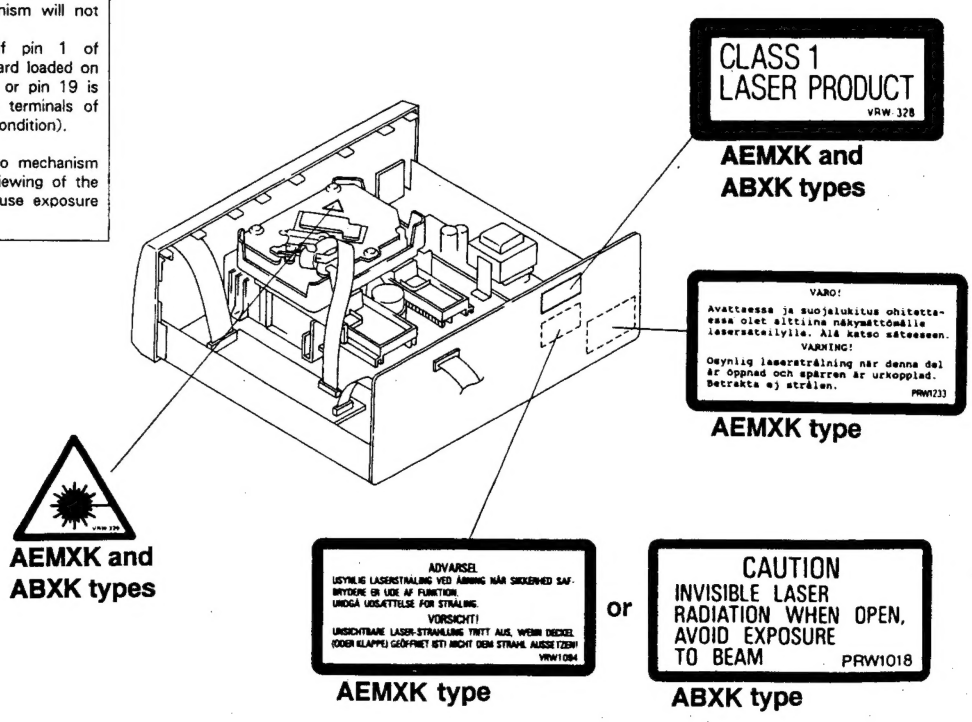
LASER DIODE CHARACTERISTICS
MAXIMUM OUTPUT POWER: 5 mw
WAVELENGTH: 780-785 nm

LABEL CHECK

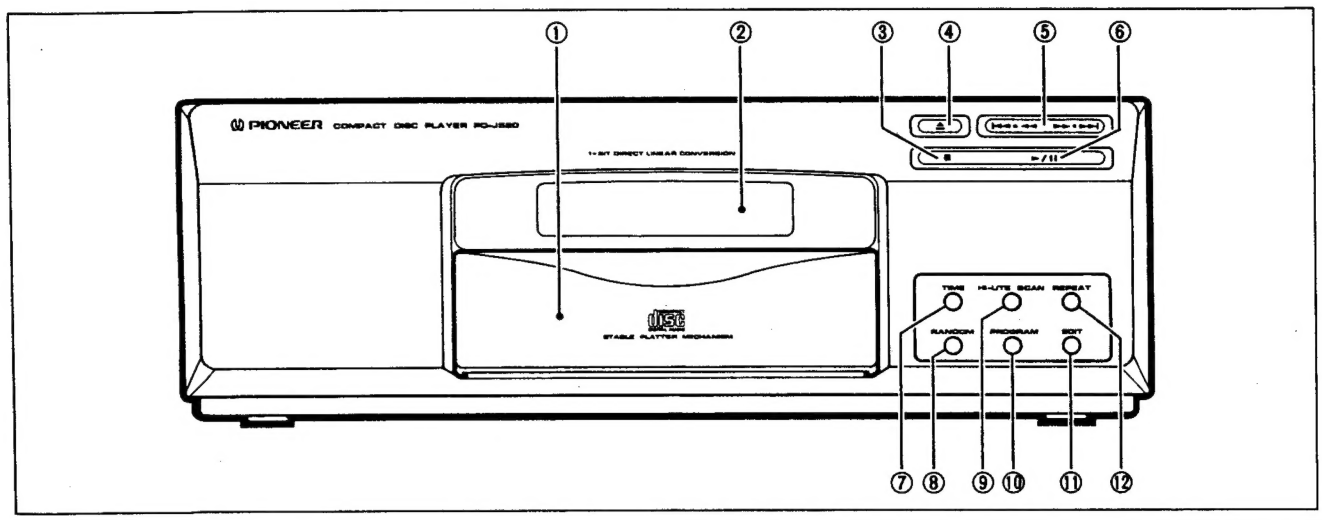
Additional Laser Caution

1. Laser Interlock Mechanism
   The position of the switch (S601) for detecting loading completion is detected by the system microprocessor, and the design prevents laser diode oscillation when the switch (S601) is not in $\overline{CLMP}$ terminal side (when $\overline{CLMP}$ signal is OFF, that is, High level).
   Thus, the interlock will no longer function if the switch (S601) is deliberately set to $\overline{CLMP}$ terminal side (if $\overline{CLMP}$ signal is low level).
   In the test mode *, the interlock mechanism will not function.
   Laser diode oscillation will continue, if pin 1 of M51593FP (IC101) on the preamplifier board loaded on pick up assembly are connected to GND, or pin 19 is connected to low level (ON), or else the terminals of Q101 are shorted to each other (fault condition).
2. When the cover is opened with the servo mechanism block removed to be turned over, close viewing of the objective lens with the naked eye will cause exposure to a Class 1 laser beam.

* Refer to page 1-7.



1.2 PANEL FACILITIES



FRONT PANEL

① Disc tray

This is where the disc is set. When tuner amplifier power is switched ON and Open/Close button (⏏) is pressed, the tray opens to the front. To close the tray, press the Open/Close button (⏏), or lightly push the ejected tray.

Load a single disc with the label side down.

② Display

③ Stop button (■)

Press to stop playback. Press once more to clear a program (see page 24).

④ Open/Close button (⏏)

Each time the button is pressed, the tray alternately opens and closes.

⑤ Manual/Track search button (⏮ · ◀◀, ▶▶ · ⏭)

To perform track search in normal playback, programmed playback or PAUSE mode. You can advance to the next track or go back to the previous one by pressing this button. The fast forward or fast reverse function will be activated by holding down this button.

⑥ Play/Pause button (▶/⏸)

When the CD player is paused or stopped, press to resume play or begin play.
If pressed during play, this temporarily interrupts play.

⑦ TIME button

This button selects the display mode of the indicator panel. Each time the button is pressed, the indication changes from TIME, to REMAIN, to TOTAL in that order.

⑧ RANDOM button

Press to begin random playback.

⑨ HI-LITE SCAN button

Every track of a CD is played back for 10 seconds, starting at a point one minute from the beginning of each song.

⑩ PROGRAM button

Use to program a sequence of tracks.

⑪ EDIT button

With this button you can automatically record (edit) from a CD to match the length of the tape. For more details, see the operating instructions supplied with the tuner amplifier.

⑫ REPEAT button

Press this button for repeat playback.

1.3 SPECIFICATIONS

Type ..... Compact disc digital audio system
Discs used ..... Compact disc
Frequency response ..... 4 Hz to 20 kHz
Number of channels ..... 2 channels (stereo)

Other

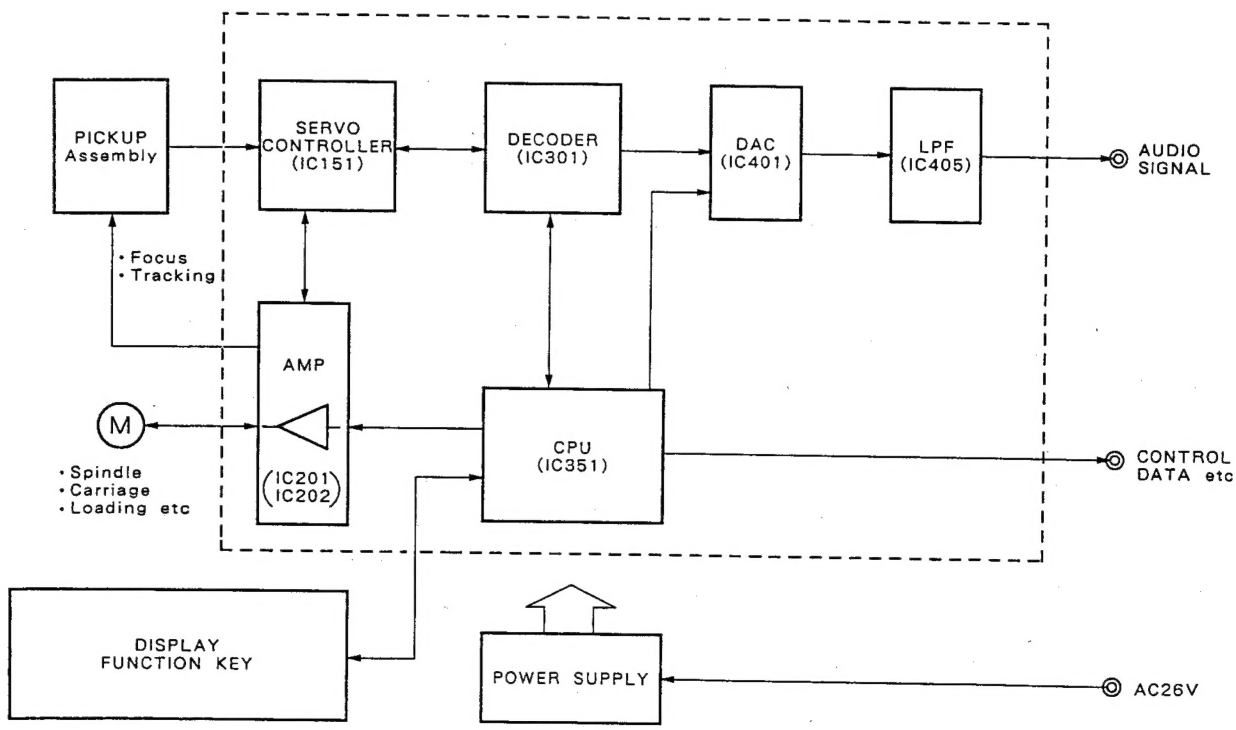
Dimensions ..... 360 (W) x 120.5 (H) x 340 (D) mm
Weight ..... 4.0 kg

Accessories

Operating Instructions 1

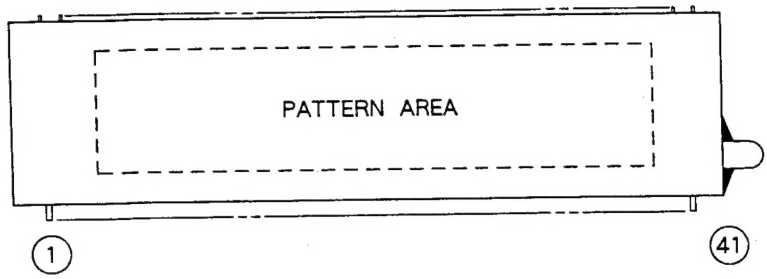
NOTE:
The specifications and design of this product are subject to change without notice, due to improvements.

1.4 BLOCK DIAGRAM



1.5 FL INFORMATION

● V701 (PEL1060)

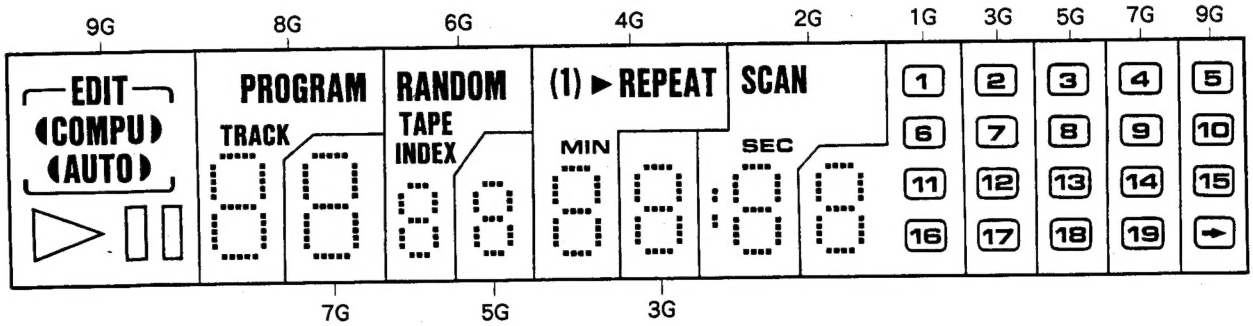


PIN CONNECTION

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
CONNECTION	F1	F1	NP	NP	9G	8G	7G	6G	5G	4G	3G	2G	1G	NC	NC	NC	NP	NP	NP

PIN NO.	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
CONNECTION	NP	NP	NP	NP	NP	NP	NC	P11	P10	P9	P8	P4	P3	P2	P1	P7	P6	P5	NP	NP	F2	F2

Note : 1) F1, F2·····Filament
2) NP ·····No pin
3) NC ·····No connection
4) 1G–9G·····Grid



ANODE CONNECTION

	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	EDIT	a	a	a	a	a	a	a	a
P2	COMPU	b	b	b	b	b	b	b	b
P3	▮▮	c	c	c	c	c	c	c	c
P4	▶	d	d	d	d	d	d	d	d
P5	(AUTO)	e	e	e	e	e	e	e	e
P6	AUTO	f	f	f	f	f	f	f	f
P7	(COMPU)	g	g	g	g	g	g	g	g
P8	5	PROGRAM	4	RANDOM	3	REPEAT	2	SCAN	1
P9	10	—	9	TAPE	8	(1)▶	7	PEAK	6
P10	15	TRACK	14	INDEX	13	MIN	12	SEC	11
P11	⇨	—	19	—	18	—	17	—	16

1.6 ADJUSTMENTS

1. Adjustment Methods

If a disc player is adjusted incorrectly or inadequately, it may malfunction or not work at all even though there is nothing at all wrong with the pickup or the circuitry. Adjust correctly following the adjustment procedure.

● Adjustment Items/Verification Items and Order

If the specified values cannot be obtained or no adjustment is possible by performing the verifications or adjustments described in steps 1 – 4, the pickup block may be defective.

Step	Item	Test Point	Adjustment Location
1	Focus offset verification	TP1, Pin 6 (FCS. ERR)	None
2	Tracking error balance verification	TP1, Pin 2 (TRK. ERR)	None
3	Pickup radial/tangential direction tilt adjustment	TP1, Pin 1 (RF)	Radial tilt adjustment screw, Tangential tilt adjustment screw
4	RF level verification	TP1, Pin 1 (RF)	None
5	Focus servo loop gain adjustment	TP1, Pin 5 (FCS. IN) TP1, Pin 6 (FCS. ERR)	VR152 (FCS. GAN)
6	Tracking servo loop gain adjustment	TP1, Pin 3 (TRK. IN) TP1, Pin 2 (TRK. ERR)	VR151 (TRK. GAN)

● **Abbreviation table**

FCS. ERR :Focus Error
TRK. ERR :Tracking Error
FCS GAN :Focus Gain
TRK GAN :Tracking Gain
FCS. IN :Focus In
TRK. IN :Tracking In

● Measuring Instruments and Tools

1. Dual trace oscilloscope (10:1 probe)
2. Low-frequency oscillator
3. Test disc (YEDS-7)
4. Low pass filter (39kΩ +0.001 μF)
5. Resistor (100 kΩ)
6. Standard tools

● Test Point and Adjustment Variable Resistor Positions

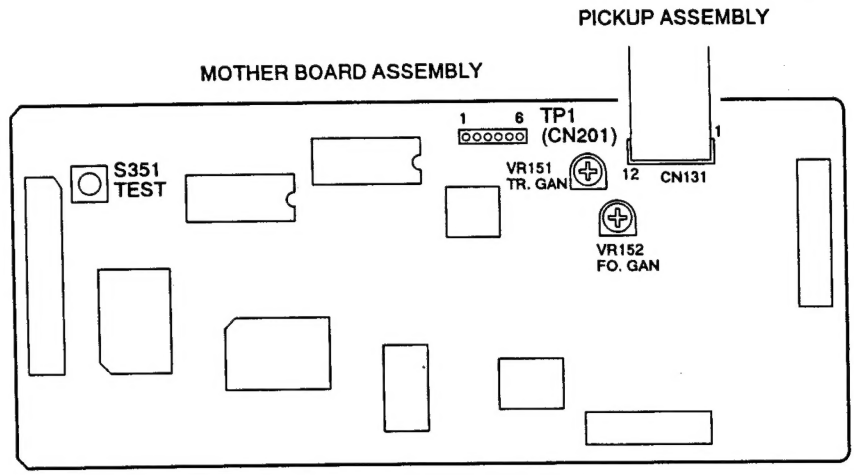


Figure 1. Adjustment Locations

● Notes

1. Use a 10:1 probe for the oscilloscope.
2. All the knob positions (settings) for the oscilloscope in the adjustment procedures are for when a 10:1 probe is used.

● Test Mode

These models have a test mode so that the adjustments and checks required for service can be carried out easily. When these models are in test mode, the keys on the front panel work differently from normal. Adjustments and checks can be carried out by operating these keys with the correct procedure. For these models, all adjustments are carried out in test mode.

[Setting these models to test mode]

How to set this model into test mode.

1. Turn off the power switch of amplifier.
2. Press the TEST mode switch (S351). (See Figure 1.)
3. Turn on the power switch of amplifier.

When the test mode is set correctly, the display is different from what it usually is when the power is turned on. If the display is still the same as usual, test mode has not been set correctly, so repeat Steps 1 – 3.

[Release from test mode]

Here is the procedure for releasing the test mode:

1. Press the STOP key and stop all operations.
2. Turn off the power switch of amplifier.

[Operations of the keys in test mode]

Code	Key Name	Function in Test Mode	Explanation
	PGM (PROGRAM)	Focus servo close	The laser diode is lit up and the focus actuator is lifted up, then lowered slowly and the focus servo is closed at the point where the objective lens is focused on the disc. With the player in this state, if you lightly rotate the stopped disc by hand, you can hear the sound the focus servo. If you can hear this sound, the focus servo is operating correctly. If you press this key with no disc mounted, the laser diode lights up, the focus actuator is pulled up, then the actuator is lowered and raised three times and returned to its original position.
▷/ ▯▯	PLAY/PAUSE	Spindle servo ON	Starts the spindle motor in the clockwise direction and when the disc rotation reaches the prescribed speed (about 500 rpm at the inner periphery), sets the spindle servo in a closed loop. Be careful. Pressing this key when there is no disc mounted makes the spindle motor run at the maximum speed. If the focus servo does not go correctly into a closed loop or the laser light shines on the mirror section at the outermost periphery of the disc, the same symptom is occurred.
▷/ ▯▯	PLAY/PAUSE	Tracking servo close/open	Pressing this key when the focus servo and spindle servo are operating correctly in closed loops puts the tracking servo into a closed loop, displays the track number being played back and the elapsed time on the front panel, and outputs the playback signal. If the elapsed time is not displayed or not counted correctly or the audio is not played back correctly, it may be that the laser is shining on the section with no sound recorded at the outer edge of the disc, that something is out of adjustment, or that there is some other problem. This key is a toggle key and open/close the tracking servo alternately. This key has no effect if no disc is mounted.

Code	Key Name	Function in Test Mode	Explanation
⏮ / ◁◁	TRACK / MANUAL SEARCH REV	Carriage reverse (inwards)	Moves the pickup position toward the inner diameter of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes into an open loop. Since the motor does not automatically stop at the mechanical end point in test mode, be careful with this operation.
▷▷ / ⏭	TRACK / MANUAL SEARCH FWD	Carriage forward (outwards)	Moves the pickup position toward the outer diameter of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes into an open loop. Since the motor does not automatically stop at the mechanical end point in test mode, be careful with this operation.
□	STOP	Stop	Initializes and the disc rotation stops. The pickup and disc remain where they are when this key is pressed.
⏏	OPEN/CLOSE	Disc tray open/close	Open/close the disc tray. This key is a toggle key and open/close tray altenately. Pressing this key when the disc is turning stops the disc, then opens the tray. This key operation does not affect the position of the pickup.

Note : When inserting the magazine, disc 1 of the magazine is loaded automatically.

[How to play back a disc in test mode]

In test mode, since the servos operate independently, playing back a disc requires that you operate the keys in the correct order to close the servos.
Here is the key operation sequence for playing back a disc in test mode.

PGM(PROGRAM)	Lights up the laser diode and closes the focus servo.
⇩	
PLAY/PAUSE ▷/ ⏸	Starts the spindle motor and closes the spindle servo.
⇩	
PLAY/PAUSE ▷/ ⏸	Closes the tracking servo.

Wait at least 2-3 seconds between each of these operations.

1. Focus Offset Verification

● Objective ● Symptom when out of adjustment	Verify the DC offset for the focus error amp. The model does not focus in and the RF signal is dirty.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 6 (FCS. ERR) [Settings] 5 mV/division 10 ms/division DC mode	● Player state ● Adjustment location ● Disc	Test mode, stopped (just the Power switch on) None None needed

[Procedure]

Verify the DC voltage at TP1, Pin 6 (FCS. ERR) is 0 ± 50 mV.

Note : If the specified values cannot be obtained or no adjustment is possible by performing the verifications or adjustments described in adjustment items 1 – 4, the pickup block may be defective.

2. Tracking Error Balance Verification

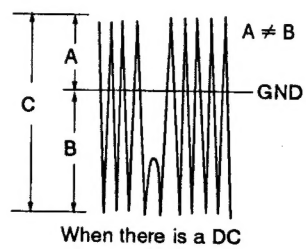
● Objective ● Symptom when out of adjustment	To verify that there is no variation in the sensitivity of the tracking photo diode. Play does not start or track search is impossible.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 2 (TRK. ERR). This connection may be via a low pass filter. [Settings] 50 mV/division 5 ms/division DC mode	● Player state ● Adjustment location ● Disc	Test mode, focus and spindle servos closed and tracking servo open None YEDS-7

[Procedure]

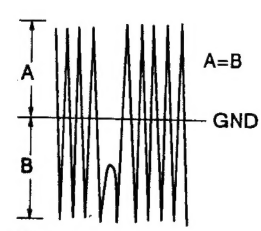
1. Move the pickup to midway across the disc (R=35 mm) with the TRACK/MANUAL SEARCH FWD ▷▷ • ▷▷| or REV |◁◁ • ◁◁ key.
2. Press the PGM (PROGRAM) key, then the PLAY/PAUSE ▷/ ▯▯ key in that order to close the focus servo then the spindle servo.
3. Line up the bright line (ground) at the center of the oscilloscope screen and put the oscilloscope into DC mode.
4. Supposing that the positive amplitude of the tracking error signal at TP1, pin 2 (TRK ERR) is (A) and the negative amplitude is (B), the following expression is satisfied.

When $A \geqq B$, $\frac{A-B}{C} \times \frac{1}{2} \leqq 0.1$

When $A < B$, $\frac{B-A}{C} \times \frac{1}{2} \leqq 0.1$



When there is a DC component



When there is no DC component

3. Pickup Radial/Tangential Tilt Adjustment

● Objective	To adjust the angle of the pickup relative to the disc so that the laser beams are shone straight down into the disc for the best read out of the RF signals.		
● Symptom when out of adjustment	Sound broken;some discs can be played but not others.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 1 (RF). [Settings] 20 mV/division 200 ns/division AC mode	● Player state ● Adjustment location ● Disc	Test mode, play Pickup radial tilt adjustment screw and tangential tilt adjustment screw YEDS-7

[Procedure]

1. Press the TRACK/MANUAL SEARCH FWD ▷▷ • ▷▷| or REV |◁◁ • ◁◁ key to move the pickup to halfway across the disc (R=35mm).
   Press the PGM(PROGRAM) key, the PLAY/PAUSE ▷/ ▯▯ key twice in that order to close the respective servos and put the player into play mode.
2. First, adjust the radial tilt adjustment screw with a Phillips screwdriver so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly.
3. Next, adjust the tangential tilt adjustment screw with a Phillips screwdriver so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly (Figure 3).
4. Adjust the radial tilt adjustment screw and the tangential tilt adjustment screw again so that the eye pattern can be seen the most clearly. As necessary, adjust the two screws alternately so that the eye pattern can be seen the most clearly.
5. When the adjustment is completed, lock the radial and tangential adjustment screw.
   Note:Radial and tangential mean the directions relative to the disc shown in Figure 2.

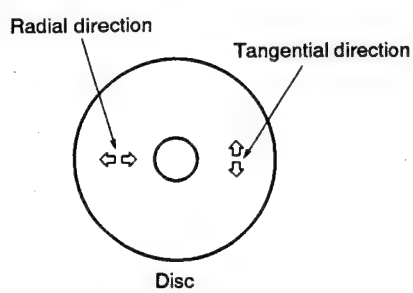
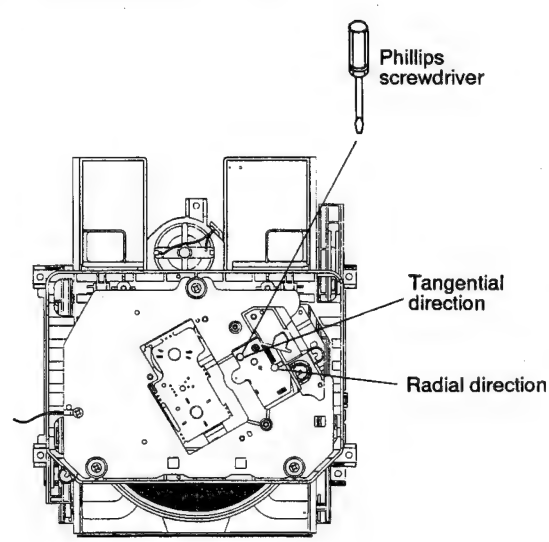


Figure 2



Adjustment locations

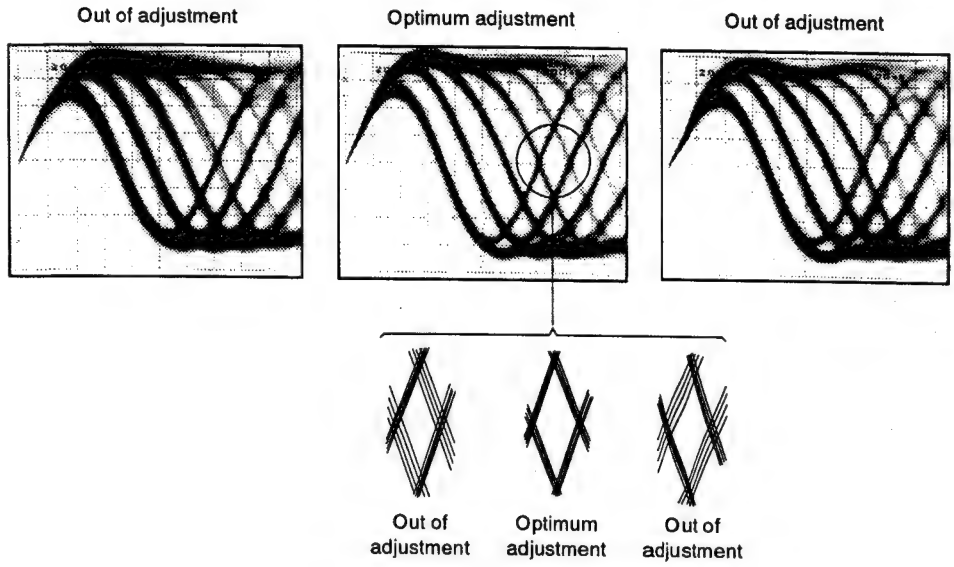


Figure 3. Eye pattern

4. RF Level Verification

● Objective ● Symptom when out of adjustment	To verify the playback RF signal amplitude No play or no search		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 1 (RF). [Settings] 50 mV/division 10 ms/division AC mode	● Player state ● Adjustment location ● Disc	Test mode, play None YEDS-7

[Procedure]

1. Move the pickup to midway across the disc (R=35 mm) with the TRACK/MANUAL SEARCH FWD ▷▷ · ▷▷| or REV |◁◁ · ◁◁ key, then press the PGM (PROGRAM) key, the PLAY/PAUSE ▷/ ▯▯ key twice in that order to close the respective servos and put the player into play mode.
2. Verify the RF signal amplitude is 1.2 Vp-p ± 0.2 V.

5. Focus Servo Loop Gain Adjustment

● Objective ● Symptom when out of adjustment	To optimize the focus servo loop gain. Playback does not start or focus actuator noisy.		
● Measurement instrument connections	See figure 4. [Settings] CH1 CH2 20 mV/division 5 mV/division X-Y mode	● Player state ● Adjustment location ● Disc	Test mode, play VR152 (FCS. GAN) YEDS-7

[Procedure]

1. Set the AF generator output to 1.2 kHz and 1 Vp-p.
2. Press the TRACK / MANUAL SEARCH FWD ▷▷ • ▷▷| or REV |◁◁ • ◁◁ key to move the pickup to halfway across the disc (R=35 mm), then press the PGM (PROGRAM) key, the PLAY / PAUSE ▷/ ▯▯ key twice in that order to close the corresponding servos and put the player into play mode.
3. Adjust VR152 (FCS. GAN) so that the Lissajous waveform is symmetrical about the X axis and the Y axis.

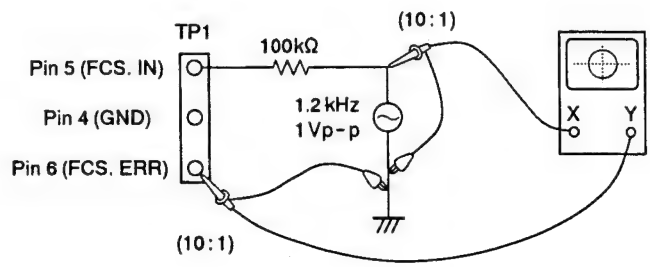
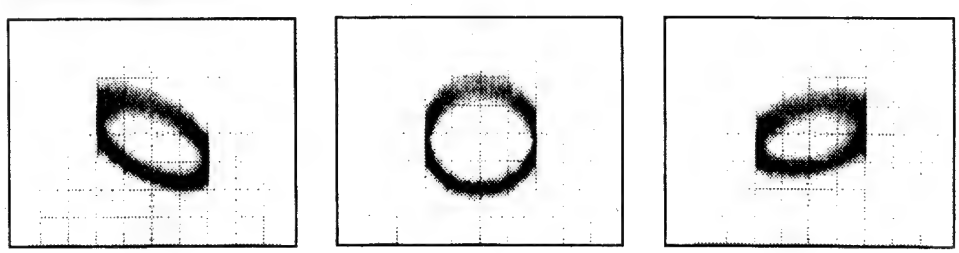


Figure 4

Focus Gain Adjustment



Higher gain | Optimum gain | Lower gain

6. Tracking Servo Loop Gain Adjustment

● Objective	To optimize the tracking servo loop gain.		
● Symptom when out of adjustment	Playback does not start, during searches the actuator is noisy, or tracks are skipped.		
● Measurement instrument connections	See Figure 5. [Settings] CH1 CH2 50 mV/division 20 mV/division X-Y mode	● Player state ● Adjustment location ● Disc	Test mode, play VR151 (TRK. GAN) YEDS-7

[Procedure]

1. Set the AF generator output to 1.2 kHz and 2 Vp-p.
2. Press the TRACK/MANUAL SEARCH FWD ▷▷ • ▷▷| or REV |◁◁ • ◁◁ key to move the pickup to halfway across the disc (R=35 mm), then press the PGM(PROGRAM) key, the PLAY/PAUSE ▷/ ▯▯ key twice in that order to close the corresponding servos and put the player into play mode.
3. Adjust VR151 (TRK. GAN) so that the Lissajous waveform is symmetrical about the X axis and the Y axis.

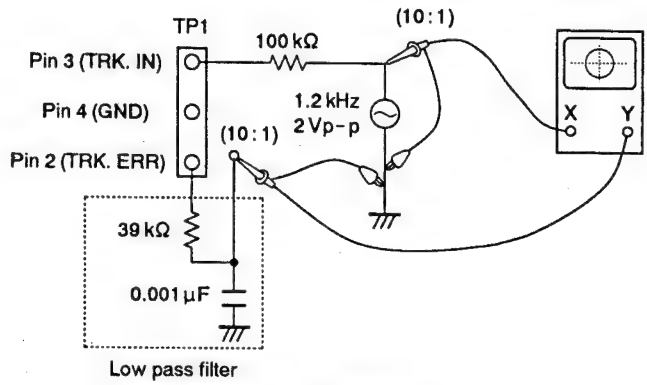
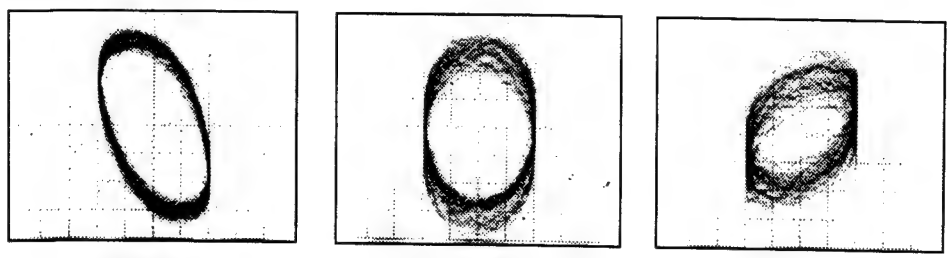


Figure 5

Tracking Gain Adjustment



Higher gain | Optimum gain | Lower gain

1.7 PARTS LIST FOR PACKING AND EXPLODED VIEWS

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

Mark	No.	Description	Part No.
1. PACKING AND EXTERIOR			
	1	Plate	PNM1158
	2	26P F.F.C/30V	PDD1141
	3	Cord with connector	PDE1107
⚠	4	POWER BOARD ASSY	PWZ2656
⚠	5	Power transformer	PTT1276
NSP	6	FUNCTION 2 BOARD ASSY	PWZ2655
	7	Foot assy	PXA1201
	8	.....	
	9	Mode button	PAC1759
	10	Control button	PAC1758
	11	E button S	PAC1762
	12	Name plate	PAM1407
	13	Name plate (TRAY)	PNW2351
	14	Display window	PAM1632
	15	Screw	BBZ30P060FMC
	16	Screw	BBZ30P080FZK
	17	Screw	PPZ30P100FMC
	18	Screw	PDZ30P050FMC
	19	Screw	IBZ30P080FCC
	20	Bonnet	PYY1170
⚠	21	MOTHER BOARD ASSY	PWM1711
	22	FUNCTION 1 BOARD ASSY	PWZ2654
	23	Cord clamper	RNH – 184
NSP	24	CONNECTOR BOARD ASSY	PWZ2657
NSP	25	Sub base STT	PNB1461
NSP	26	PCB holder	PNW2100
	27	Control panel	PNW2350
NSP	28	Rear base (PD – J520/AEMXK)	PNA2041
NSP	28	Rear base (PD – J520/ABXK)	PNA2044
NSP	29	Under base	PNA1901
	30	Protector (F)	PHA1264
	31	Protector (R)	PHA1265
	32	Packing case	PHG1970
	33	Mirror mat sheet	Z23 – 007
	34	Operating instructions (English/French/German/ Italian/Dutch/Swedish/ Spanish/Portuguese) (PD – J520/AEMXK)	PRE1184
	34	Operating instructions (English) (PD – J520/ABXK)	PRB1201
	35	Rubber sheet	AEB1111
	36	Caution label	PRW1244
2. MECHANISM SECTION			
	1	Lever switch (S601)	DSK1003
	2	Screw (steel)	PBA1027
	3	Rubber belt	PEB1186
	4	Motor pulley	PNW1634
	5	Drive gear	PNW1996
	6	Timing lever	PNW2168
	7	Gear pulley	PNW1998
	8	SW head	PNW1999
	9	Float base	PNW2000
	10	Left cam	PNW2001
	11	Right cam	PNW2002
	12	Compression spring	PBH1120
	13	Tention spring	PBH1121
	14	Float (rubber)	PEB1014
	15	Table rubber sheet	PEB1181
	16	Tray	PNW2003
	17	Table guide	PNW2004
	18	Lock plate	PNW2005
	19	DC motor (0.75W, LOADING)	PXM1010
	20	Rubber bush	PEB1031
	21	Rubber bush	PEB1170
	22	Screw	BMZ26P040FMC
	23	Screw	IPZ26P060FCU
	24	Screw	IPZ20P080FMC
	25	Turn table assy	PEA1199
	26	Washer	YE20S
NSP	27	Loading base	PNW1995
NSP	28	Table bearing assy	PXA1383
NSP	29	Turn table (AL)	PNR1044
	30	DC motor (CARRIAGE)	PXM1027
	31	Pinion gear	PNW2055
	32	DC motor assy (SPINDLE)	PEA1236
	33	Carridge base	PNW2445
	34	Disc table	PNW1067
	35	Screw	JFZ20P030FNI
	36	Screw	JFZ17P025FZK
	37	Gear 3	PNW2054
	38	Gear 2	PNW2053
	39	Washer	WT12D032D025
	40	Pickup assy	PEA1179
	41	Guide bar	PLA1094
	42	Gear 1	PNW2052
NSP	43	Gear stopper	PNB1303
	44	Screw	BPZ20P060FMC
	45	Spring	PBH1132
NSP	46	Mechanism base	PNB1431
	47	Screw	BPZ20P100FMC
	48	PWB holder	PNW2057
NSP	49	Earth lead unit	PDF1104
NSP	50	MECHANISM BOARD ASSY	PWX1192
	51	Cord clamper	REC – 371
NSP	52	Servo mechanism assy	PXA1479
	53	Screw	BPZ26P060FMC
	54	Shaft holder	PNB1382

1.8 PCB PARTS LIST

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω → 56 × 10^1 → 561 ····· RD1/8PM 5 6 1 J
47k Ω → 47 × 10^3 → 473 ····· RD1/4PS 4 7 3 J
0.5 Ω → 0R5 ····· RN2H 0 R 5 K
1 Ω → 010 ····· RS1P 0 1 0 K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

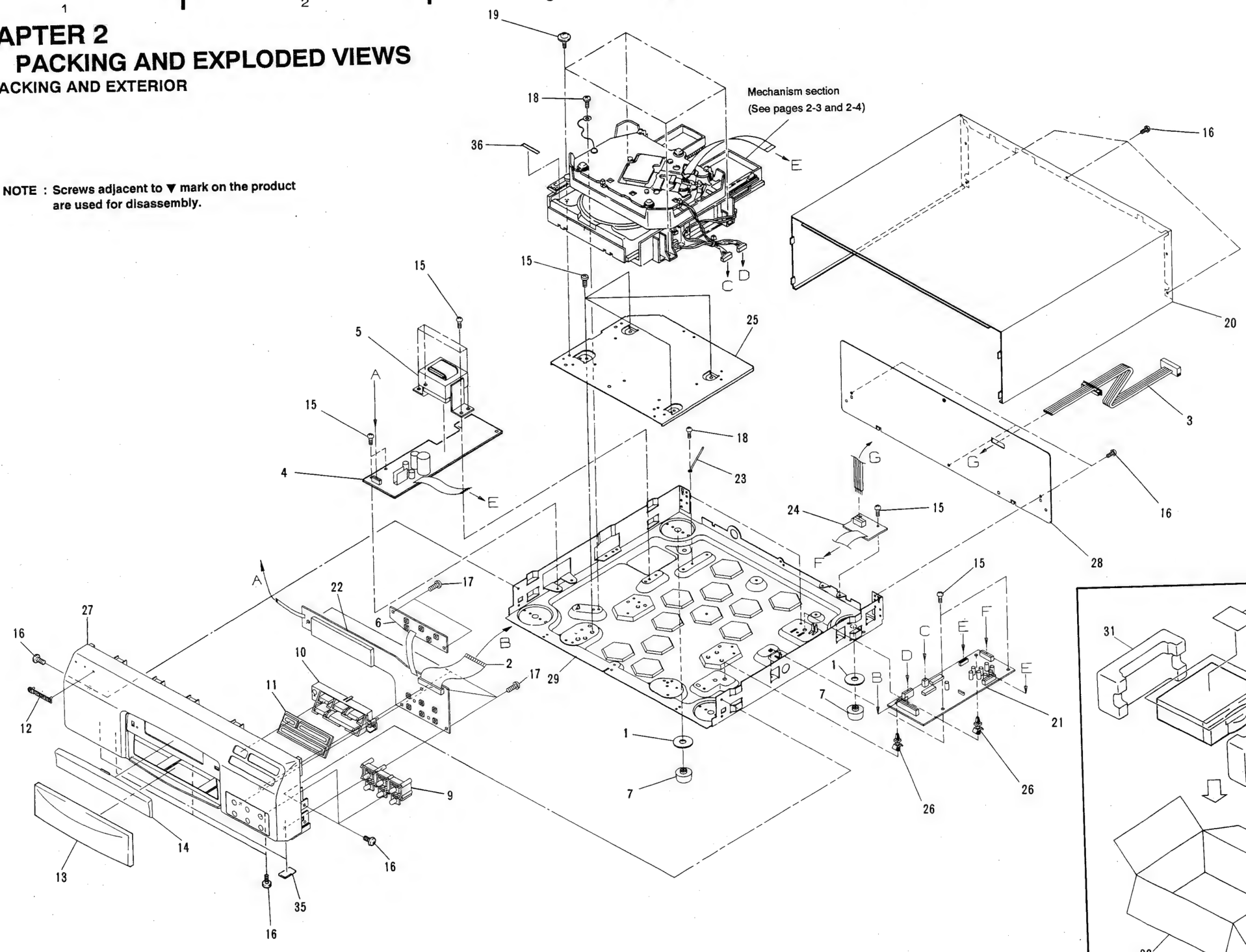
5.62k Ω → 562 × 10^1 → 5621 ····· RN1/4PC 5 6 2 1 F

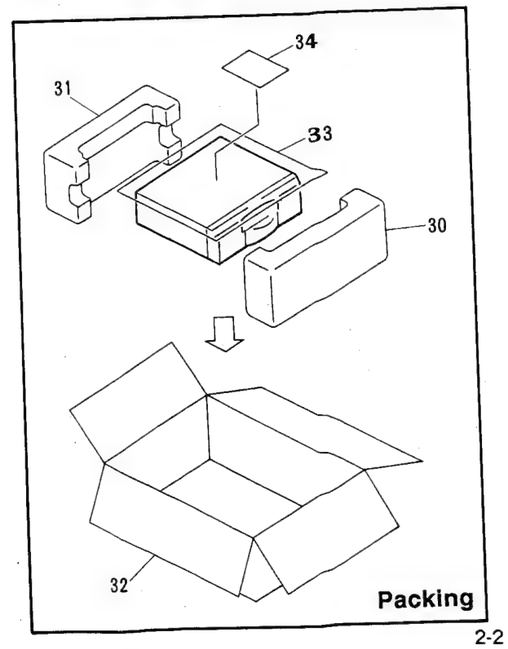
Mark	No.	Description	Part No.
LIST OF ASSEMBLIES			
⚠		MOTHER BOARD ASSY	PWM1711
NSP		MECHANISM BOARD ASSY	PWX1192
⚠ NSP		SUB BOARD ASSY	PWX1302
		├ FUNCTION 1 BOARD ASSY	PWZ2654
NSP		├ FUNCTION 2 BOARD ASSY	PWZ2655
⚠		├ POWER BOARD ASSY	PWZ2656
NSP		└ CONNECTOR BOARD ASSY	PWZ2657
MOTHER BOARD ASSY			
SEMICONDUCTORS			
	IC151		CXA1372Q
	IC301		CXD2500AQ
⚠	IC201, IC202		LA6520
	IC405		NJM4565D-D
	IC351		PD4438A
	IC401		TC9237BF
	Q381, Q382		2SC1740S
	Q403, Q404		2SD2144S
	Q406		DTA124ES
	Q405		DTC124ES
	D381-D383		1SS133X
SWITCHES			
	S351		PSG1006
CAPACITORS			
	C403, C404		CCSQCH180J50
	C435-C438		CCSQCH390J50
	C429, C430		CCSQCH560J50
	C433, C434		CEAS220M25
	C216, C217, C302, C31-C34		CEAS330M16
	C351		CEAS330M16
	C160, C162		CEAS4R7M50
	C309		CEASR47M50
	C40		CKCYF103Z50
	C157, C164, C167, C169		CKSQYB103K50
	C202, C203, C205, C206, C308		CKSQYB103K50
	C354, C375		CKSQYB103K50
	C158, C159, C161, C163, C301		CKSQYB104K25
	C304		CKSQYB104K25
	C306, C441, C442		CKSQYB152K50
	C155		CKSQYB182K50
	C212		CKSQYB272K50
	C170		CKSQYB332K50
	C156, C168		CKSQYB333K25
	C171, C172		CKSQYB472K50
	C307		CKSQYB473K25
	C353, C356, C361, C41, C42		CKSQYF103Z50
	C420, C43, C44		CKSQYF103Z50
	C410, C411, C414-C416		CKSQYF104Z25
	C418, C419, C422, C423		CKSQYF104Z25
	C431, C432		CKSQYF104Z25
	C421, C424, C426		CKSQYF473Z25
RESISTORS			
	VR151, VR152 (22K)		RCP1046
	Other Resistors		RS1/10S□□□J
OTHERS			
	CN131 CONNECTOR 12P		12FMZ-ABT
	CN381 9P JUMPER CONNECTOR		52147-0910
	CN11 10P JUMPER CONNECTOR		52147-1010
	CN201 TOP POST (6P)		B6P-SHF
	CN351 CONNECTOR 26P		HLEM26S
	X401 CRYSTAL RESONATOR (16.9344MHz)		PSS1008
	CN202 CONNECTOR 4P		VKN1051
	CN206 CONNECTOR 5P		VKN1052
	X351 CERAMIC RESONATOR (4.19MHz)		VSS1014
MECHANISM BOARD ASSY			
SWITCHES AND RELAYS			
	S610 PUSH SWITCH		DSG1016
OTHERS			
	CN610 CONNECTOR 4P		VKN1061

Mark	No.	Description	Part No.
FUNCTION 1 BOARD ASSY			
SEMICONDUCTORS			
	D701-D704		1SS254
SWITCHES AND RELAYS			
	S701-S703, S707, S708, S711		RSG1034
RESISTORS			
	All Resistors		RD1/6PM□□□J
OTHERS			
	CN701 CONNECTOR 26P		HLEM26R
	V701 FL INDICATOR TUBE		PEL1060
FUNCTION 2 BOARD ASSY			
SEMICONDUCTORS			
	D705, D706		1SS254
SWITCHES AND RELAYS			
	S704-S706, S709, S710		RSG1034
POWER BOARD ASSY			
SEMICONDUCTORS			
⚠	IC20		M5298P
⚠	D11-D14, D52		11ES2
	D54		MTZJ18B
CAPACITORS			
	C60		CEAS010M50
	C28		CEAS101M10
	C52		CEAS101M35
	C27		CEAS102M10
	C26		CEAS222M16
	C25		CEAS472M16
	C11-C16		CKCYF103Z50
RESISTORS			
	All Resistors		RD1/6PM□□□J
OTHERS			
	CN12 3P JUMPER CONNECTOR		52147-0310
	HEAT SINK		PNB1233
	PCB BINDER		VEF1008
CONNECTOR BOARD ASSY			
OTHERS			
	CN382 9P JUMPER CONNECTOR		KPE9

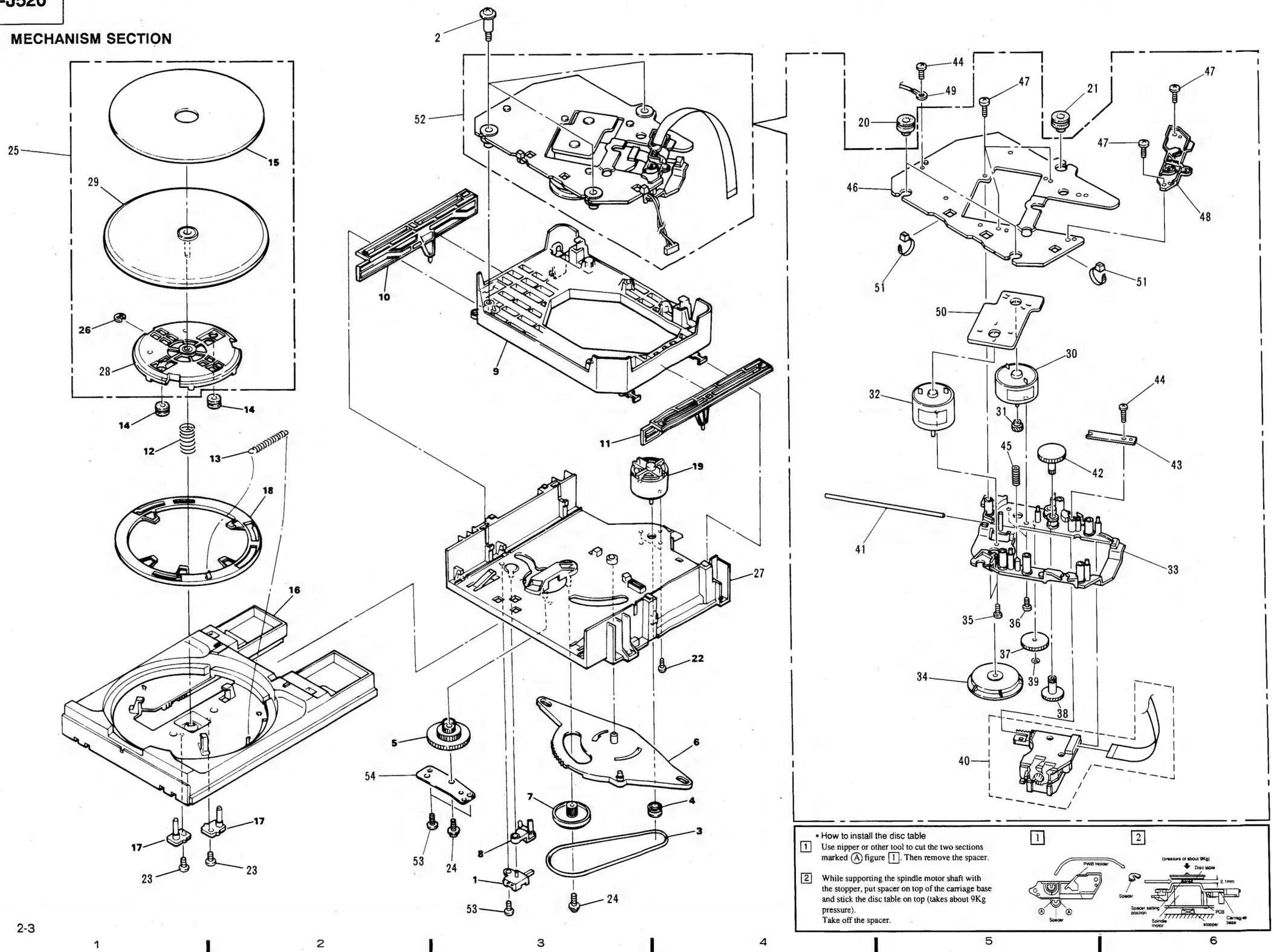
CHAPTER 2
2.1 PACKING AND EXPLODED VIEWS
1. PACKING AND EXTERIOR

NOTE : Screws adjacent to ▼ mark on the product are used for disassembly.





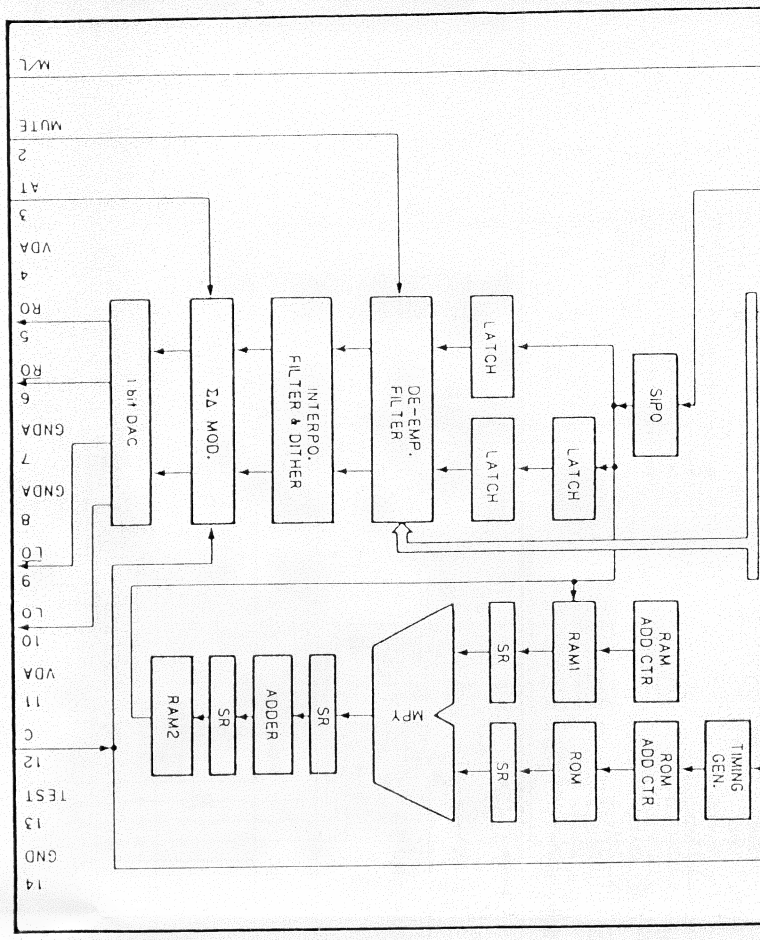
2. MECHANISM SECTION



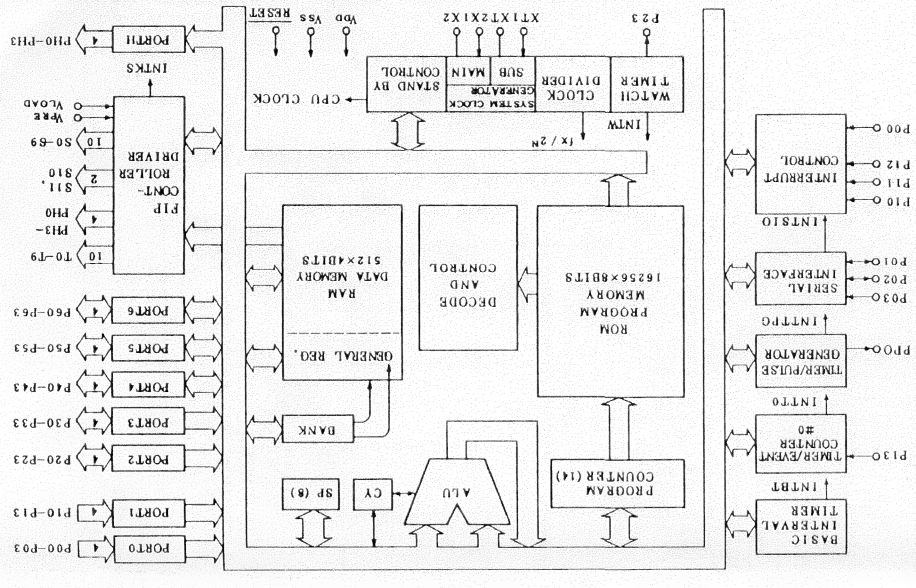
- How to install the disc table

1 Use nipper or other tool to cut the two sections marked Ⓐ figure 1. Then remove the spacer.

2 While supporting the spindle motor shaft with the stopper, put spacer on top of the carriage base and stick the disc table on top (takes about 9Kg pressure).
Take off the spacer.



87BF)



IC351 (PD4438A)

2.2 SCHEMATIC AND PCB CONNECTION DIAGRAM

NOTE FOR SCHEMATIC DIAGRAMS (Type 4A)

1. **When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".**
2. **Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.**
3. **RESISTORS:**
   Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
   Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.
4. **CAPACITORS:**
   Unit: p:pF or μF unless otherwise noted.
   Ratings: capacitor (μF)/ voltage (V) unless otherwise noted.
   Rated voltage: 50V except for electrolytic capacitors.
5. **COILS:**
   Unit: m:mH or μH unless otherwise noted.
6. **VOLTAGE AND CURRENT:**
   ▭ or ← V :
   DC voltage (V) in PLAY mode unless otherwise noted.
   ⇦ mA or ← mA :
   DC current in PLAY mode unless otherwise noted.
   Value in ( ) is DC current in STOP mode.
7. **OTHERS:**
   - ⌀ or ◐ : Adjusting point.
   - ◁ : Measurement point.
   - The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
8. **SCH—□ ON THE SCHEMATIC DIAGRAM:**
   - SCH—□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)
9. **SWITCHES** (Underline indicates switch position):

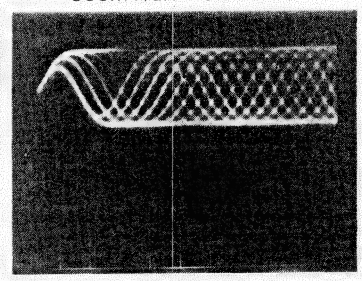
FUNCTION 1 BOARD ASSY
S701 : PROGRAM
S702 : EDIT
S703 : REPEAT
S707 : TIME
S708 : RANDOM
S711 : HI – LITE SCAN

FUNCTION 2 BOARD ASSY
S704 : ⏮/◀◀
S705 : ▶/⏸
S706 : OPEN/CLOSE⏏
S709 : ▶▶/⏭
S710 : ■

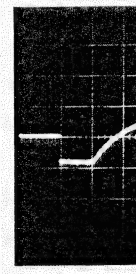
WAVEFORMS

Note: The encircled numbers denote measuring points in the schematic diagram.

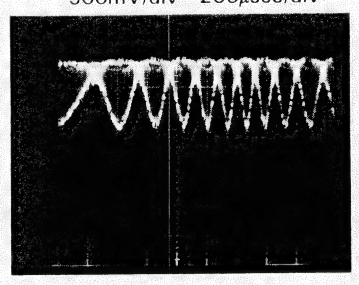
② TP1-Pin 1: PLAY MODE (RF)
500mV/div 500nsec/div



⑤ IC202- (FODR)
1V/div

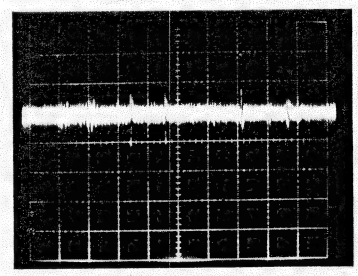


② TP1-Pin 1: TRACK SEARCH MODE (RF)
500mV/div 200μsec/div

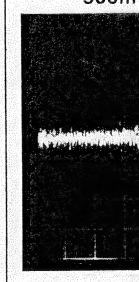


⑤ IC202- (FODR)
1V/div

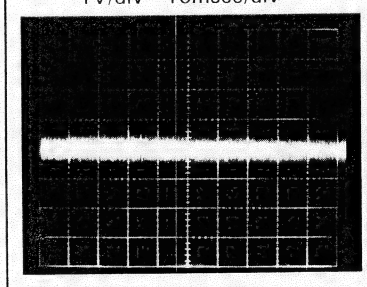
③ TP1-Pin 6: PLAY MODE (FOER)
100mV/div 10msec/div



⑥ IC202 (TRDF)
500m

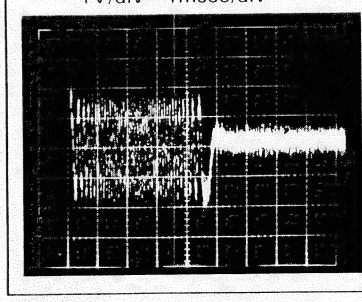


④ TP1-Pin 2: PLAY MODE (TRER)
1V/div 10msec/div

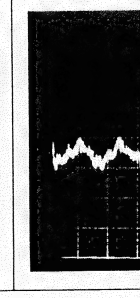


⑥ IC202 (TRDF)
500m

④ TP1-Pin 2: 50T-JUMP (*1) MODE (TRER)
1V/div 1msec/div



⑦ IC201 (SPDF)
1V/di



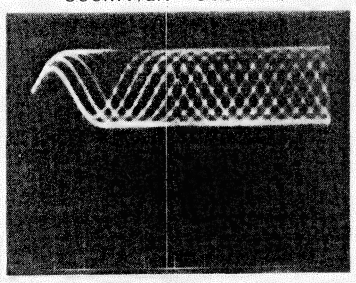
WAVEFORMS

Note: The encircled numbers denote measuring points in the schematic diagram.

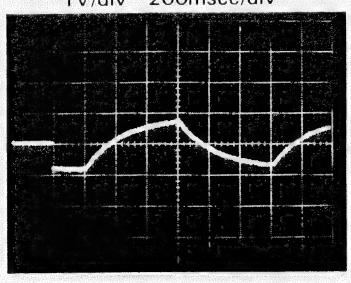
*1 50T-JUMP: After switching to the pause mode, press the manual search key.

*2 FOCUS-IN: Press the key without loading a disc.

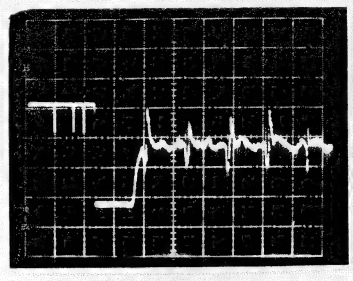
(2) TP1-Pin 1: PLAY MODE
(RF)
500mV/div 500nsec/div



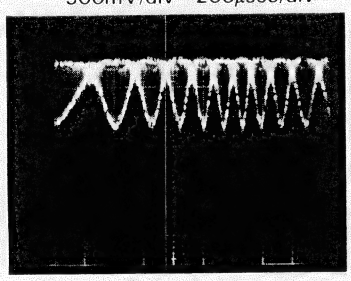
(5) IC202-Pin 4: FOCUS-IN (* 2) MODE
(FODR)
1V/div 200msec/div



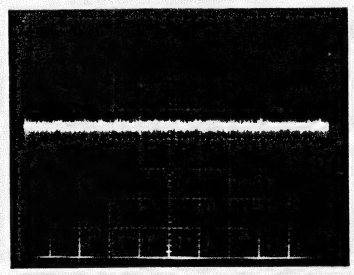
(7) IC201-Pin 3: TRACK SEARCH MODE
(SPDR)
2V/div 50msec/div



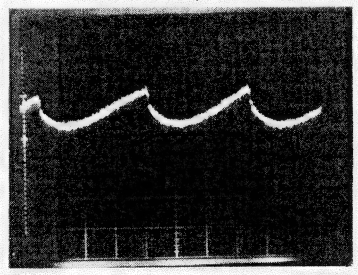
(2) TP1-Pin 1: TRACK SEARCH MODE
(RF)
500mV/div 200μsec/div



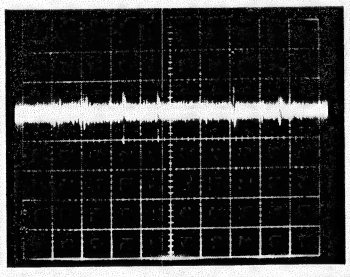
(5) IC202-Pin 4: PLAY MODE
(FODR)
1V/div 1msec/div



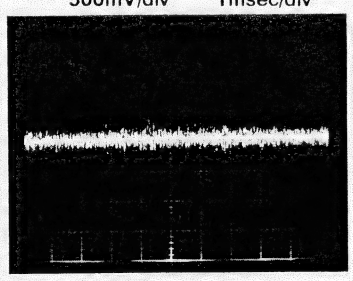
(8) IC202-Pin 9: PLAY MODE
(CADR)
1V/div 2sec/div



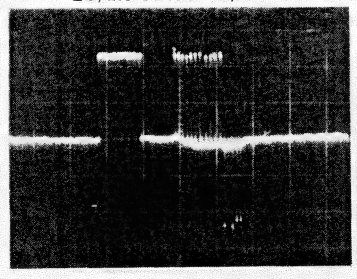
(3) TP1-Pin 6: PLAY MODE
(FOER)
100mV/div 10msec/div



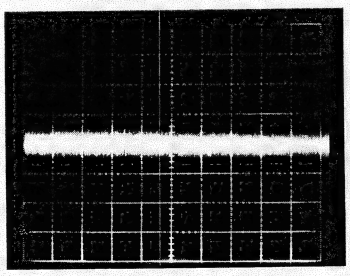
(6) IC202-Pin 3: PLAY MODE
(TRDR)
500mV/div 1msec/div



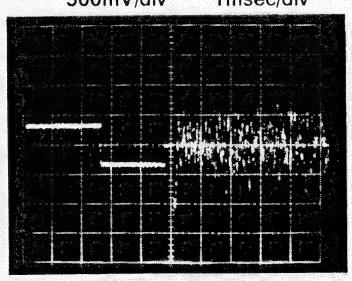
(8) IC202-Pin 9: TRACK SEARCH MODE
(CADR)
2V/div 500msec/div



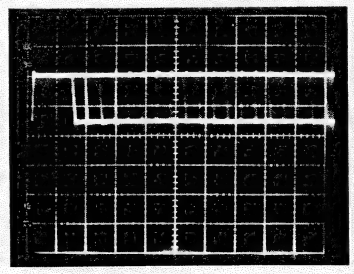
(4) TP1-Pin 2: PLAY MODE
(TRER)
1V/div 10msec/div



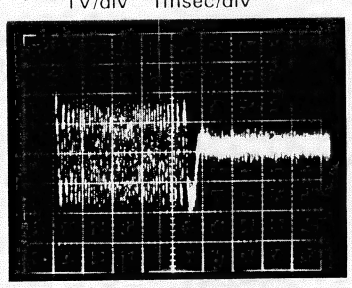
(6) IC202 Pin 3: 50T-JUMP (* 1) MODE
(TRDR)
500mV/div 1msec/div



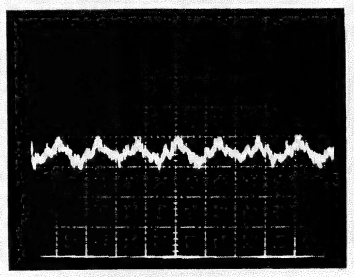
(9) IC151-Pin 32: PLAY MODE
(EFM)
2V/div 500nsec/div



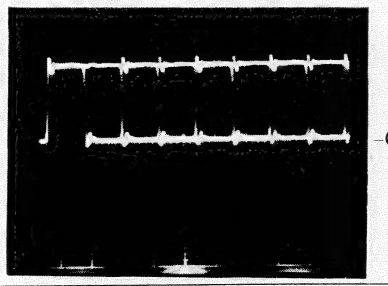
(4) TP1-Pin 2: 50T-JUMP (*1) MODE
(TRER)
1V/div 1msec/div



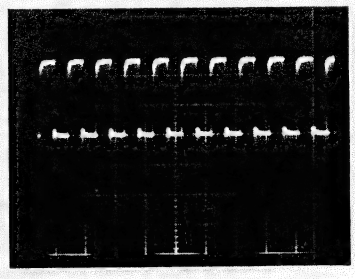
(7) IC201-Pin 3: PLAY MODE
(SPDR)
1V/div 50msec/div



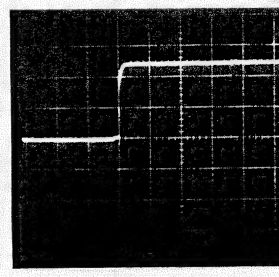
(10) IC401-Pin 9: PLAY MODE (1kHz)
(LO) (D/A DATA OUT)
2V/div 0.1 μsec/div



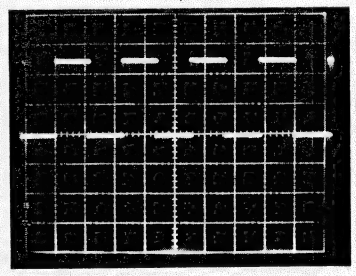
(16) IC301-Pin 35: PLAY MODE (1kHz)
(BCLK)
2V/div 500nsec/div



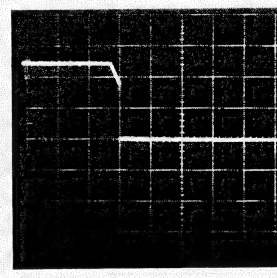
(22) IC20-Pin 9: POWER S
(RST)
2V/div 100msec/div



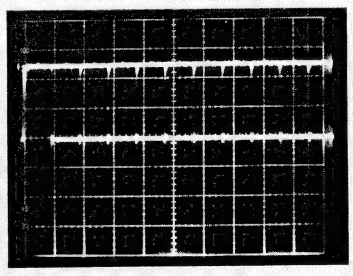
(18) IC301-Pin 32: PLAY MODE (1kHz)
(LRCK)
2V/div 10μsec/div



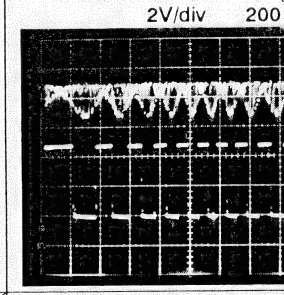
(22) IC20-Pin 9: POWER S
(RST)
2V/div 100msec/div



(19) IC301-Pin 34: PLAY MODE (1kHz)
(DATA)
2V/div 500nsec/div

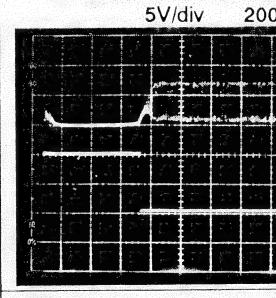


(23) : TRACK S
Upper: TP1-Pin 1 (RF
Lower: IC151-Pin 29 (
2V/div 200

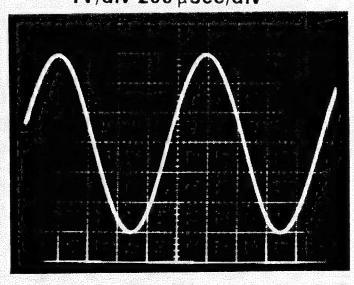


(20)

(24) : PLAY MO
Upper: TP1-Pin 1 (RF
Lower: IC151-Pin 30
5V/div 200

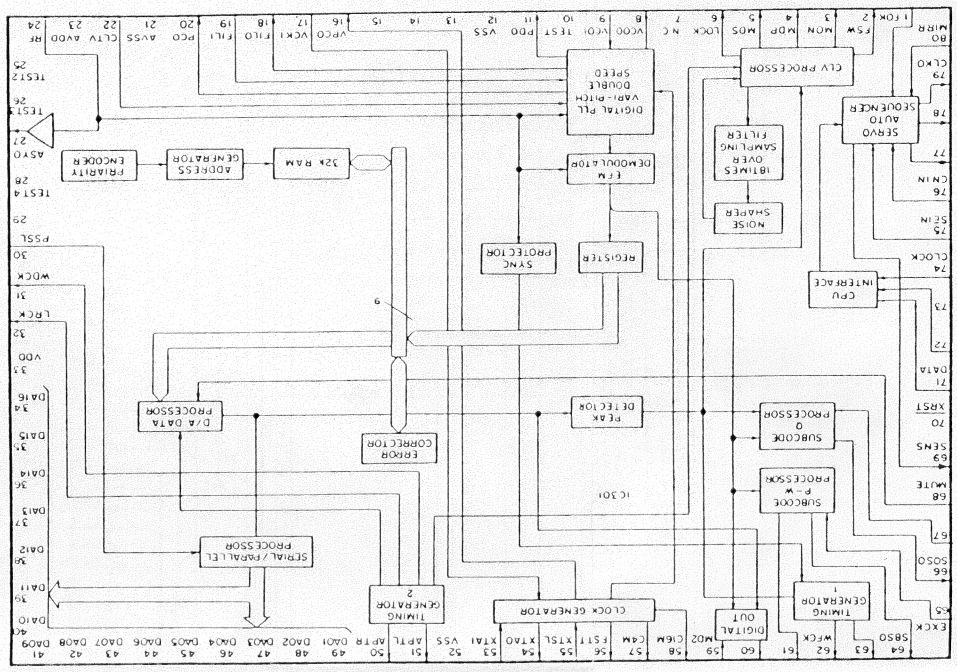


(21) CN381-Pin 1: PLAY MODE (1kHz)
(Lch OUTPUT)
1V/div 200 μsec/div

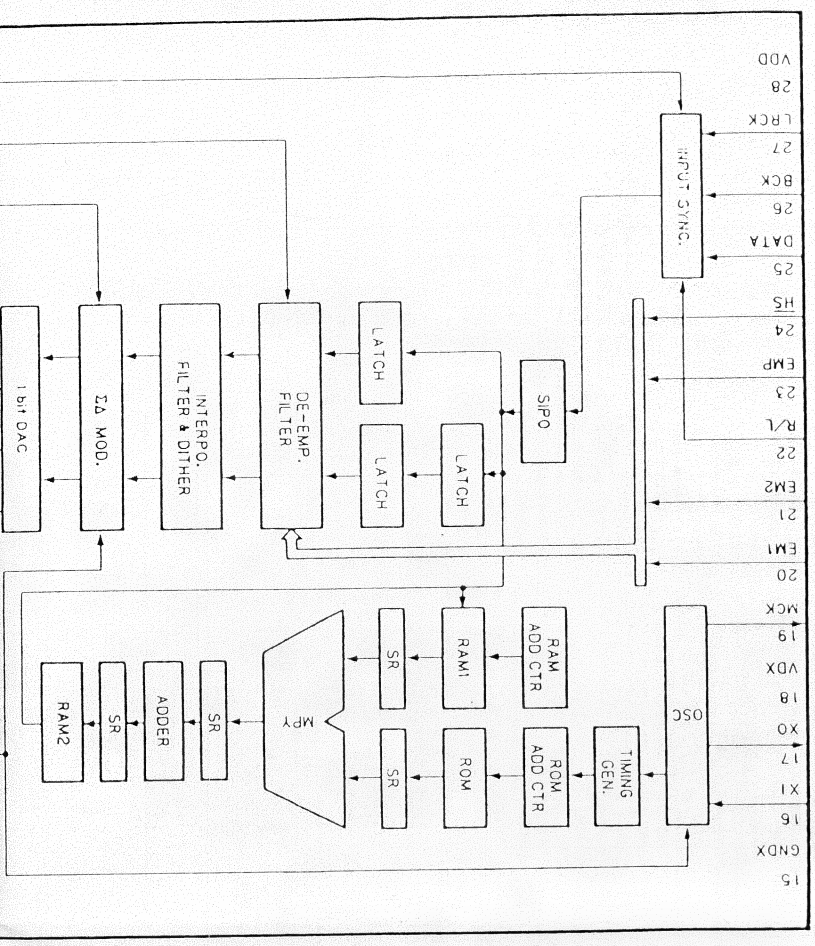


(25)

IC301 (CXD2500AQ)



IC401 (TC9237BF)



*1 50T-JUMP: After switching to the pause mode, press the manual search key.
*2 FOCUS-IN: Press the key without loading a disc.

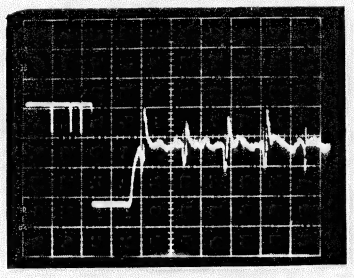
N (*2) MODE
v
— GND

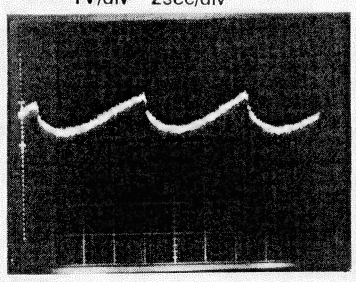
ODE
— GND

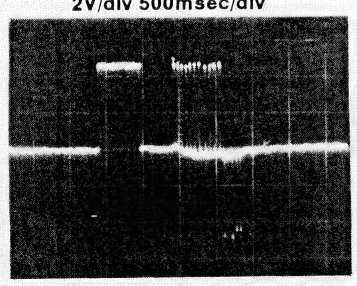
MODE
ec/div
— GND

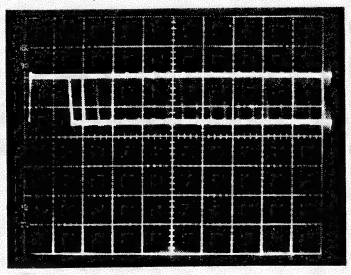
MP (*1) MODE
ec/div
— GND

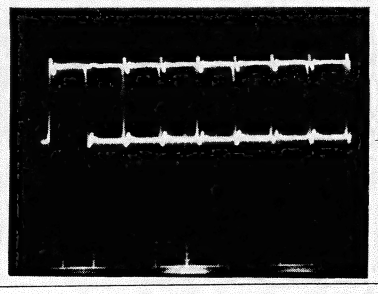
MODE
v
— GND

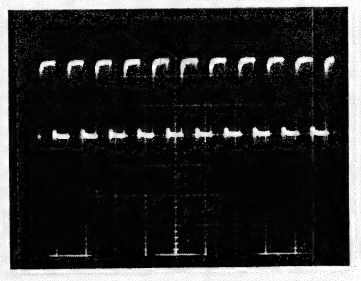
⑦ IC201-Pin 3: TRACK SEARCH MODE (SPDR)
2V/div 50msec/div

— GND

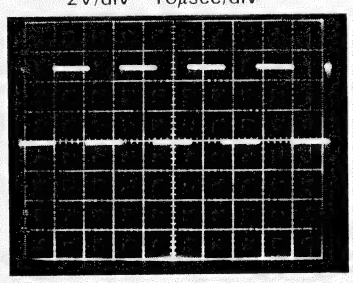
⑧ IC202-Pin 9: PLAY MODE (CADR)
1V/div 2sec/div

— GND

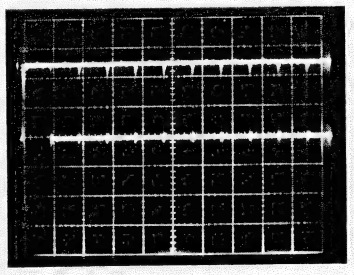
⑧ IC202-Pin 9: TRACK SEARCH MODE (CADR)
2V/div 500msec/div

— GND

⑨ IC151-Pin 32: PLAY MODE (EFM)
2V/div 500nsec/div

— GND

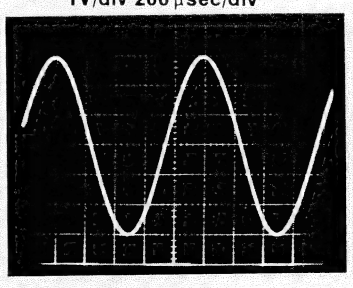
⑩ IC401-Pin 9: PLAY MODE (1kHz) (LO) (D/A DATA OUT)
2V/div 0.1 μsec/div

—GND

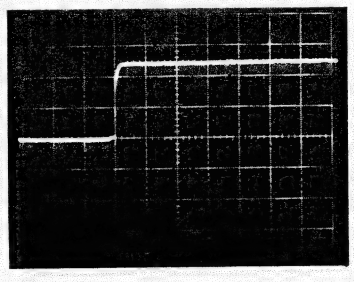
⑯ IC301-Pin 35: PLAY MODE (1kHz) (BCLK)
2V/div 500nsec/div

— GND

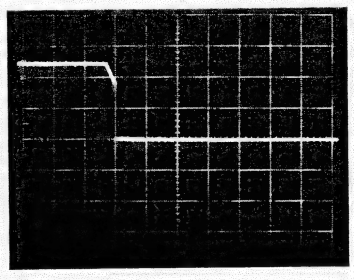
⑱ IC301-Pin 32: PLAY MODE (1kHz) (LRCK)
2V/div 10μsec/div

— GND

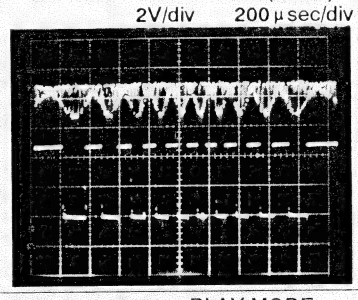
⑲ IC301-Pin 34: PLAY MODE (1kHz) (DATA)
2V/div 500nsec/div

— GND

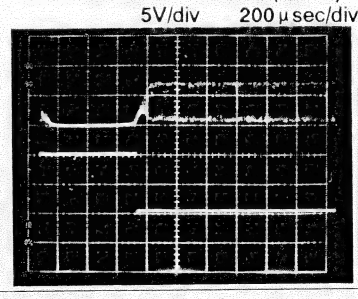
⑳

㉑ **CN381-Pin 1: PLAY MODE (1kHz) (Lch OUTPUT)**
1V/div 200 μsec/div

— GND

㉒ IC20-Pin 9: POWER SWITCH-ON (RST)
2V/div 100msec/div

— GND

㉒ IC20-Pin 9: POWER SWITCH-OFF (RST)
2V/div 100msec/div

— GND

㉓ : TRACK SEARCH MODE
Upper: TP1-Pin 1 (RF) 1V/div
Lower: IC151-Pin 29 (MIRR)
2V/div 200 μsec/div

— GND
— GND

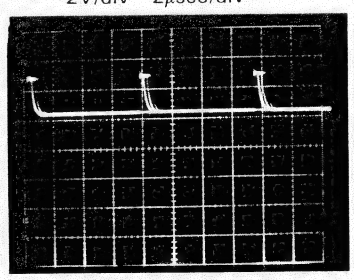
㉔ : PLAY MODE
Upper: TP1-Pin 1 (RF) 1V/div
Lower: IC151-Pin 30 (DFCT)
5V/div 200 μsec/div

— GND
— GND

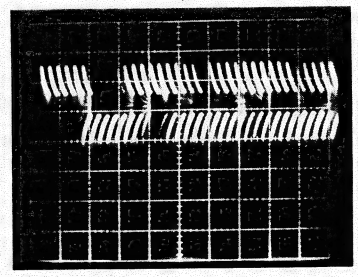
㉕

㉖

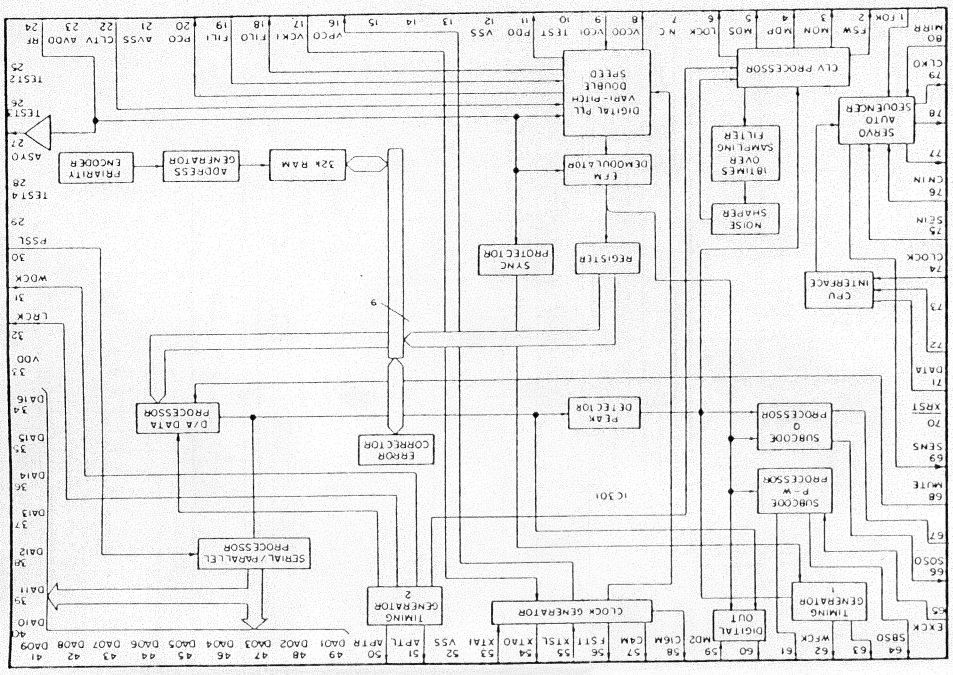
㉗

㉘

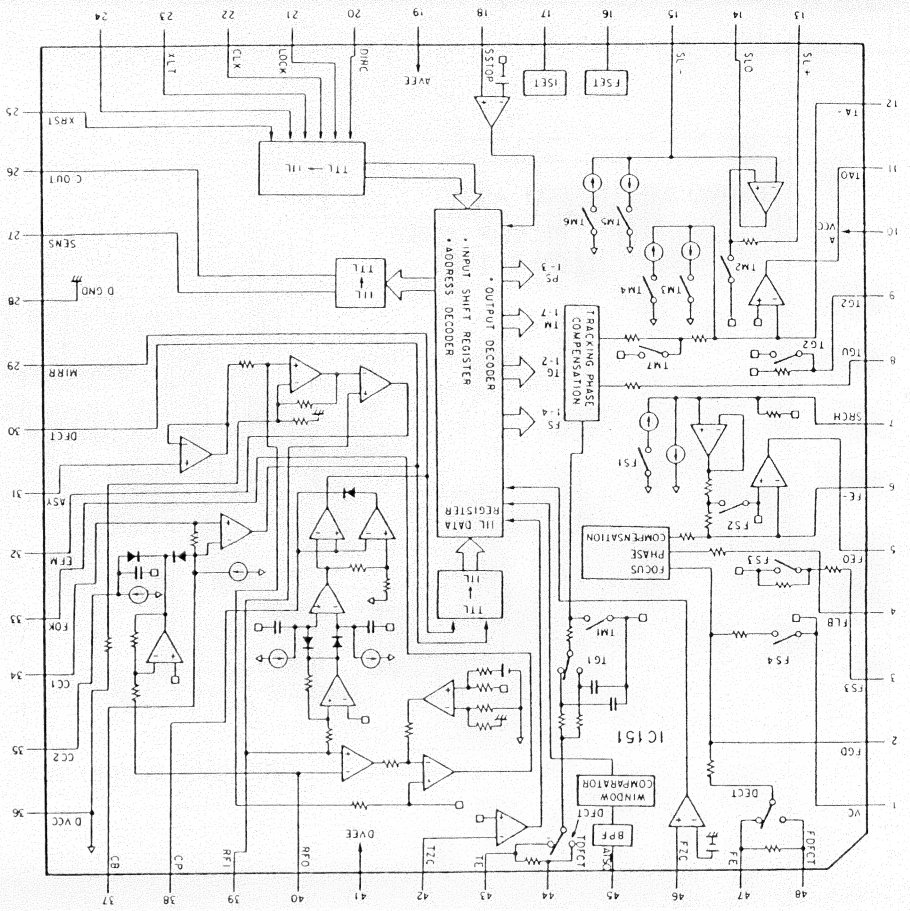
㉝ IC301-Pin 4: PLAY MODE (MDP)
2V/div 2μsec/div

— GND

㊸ IC301-Pin 20: PLAY MODE (PCO)
2V/div 10μsec/div

— GND

IC301 (CXD2500AQ)



IC151 (CXA1372Q)



SERVO MECHANISM ASSY

PICKUP ASSY
(PEA1179)

TRACKING COIL
FOCUS COIL
OUTSIDE
INSIDE
NEAR
FAR
HOLOGRAM LASER UNIT

PRE AMP BOARD ASSY

Q101 2SB1189
SHORT LAND
LD POWER
IC101 M51593FP
TR BAL
FO.OFS

CN131 12FMZ-ABT
ACTF-
ACTF+
ACTT-
ACTT+
-5V
+5V
GND
LDON
FE
TE
ORF

TP1
CN201 B6P-SHF-1AA
RF
TRER
TRIN
FOIN
FOER

MECHANISM BOARD ASSY
(PWX1192)

INSIDE SW S610
DSG1016
SPDL MTR ASSY PEA1236
CARRIAGE MTR PXM1027

CN202 VKN1051
INSD
SPDR
CADR

S601
DSK1003
CLAMP SW
PXM1010
LOADING MOTOR

VKN1052 ICN206
CLMP
OPEN
LOAD

LOADING MECHANISM ASSY

IC201 (1/3) ; SPINDLE DRIVE
IC201 (1/3) LA6520

IC202 (2/3) ; FOCUS DRIVE
IC202 (2/3) LA6520

IC202 (1/3) ; TRACKING DRIVE
IC202 (1/3) LA6520

IC202 (3/3) ; CARRIAGE DRIVE
IC202 (3/3) LA6520

IC201 (2/3) LA6520

IC201 (3/3) ; LOADING DRIVE
IC201 (3/3) LA6520

IC151 CXA1372Q
(SERVO CONTROL)

IC3
CXD2
(DECOD

NOTES

CAPACITORS μF
YB Seramic CKSQYB
CH Seramic CCSQCH
Un Marked Type CKSQYF
MOTHER PCB ASS'Y:CEAS
OTHERS:CEAS

OTHERS
⏚ :Chassis Ground

RESISTORS Ω
MOTHER PCB ASS'Y:1/10w Type
OTHERS:1/6W Type

CN351 HLEM26S-1
J701 PDD1141
CN701 HLEM26R-1

SA SB SC SD
D701 D702 D703 D704
S701 PGM
S702 EDIT
S711 HI-LITE
S703 REP
S707 TIME
S708 RND
KD0
KD1

S701~S711: RSG1034X11
D701~D706: 1SS254X6

(FL HOLDER PNB1429)
V701 PEL1060-A
FL INDICATOR TUBE

FUNCTION 1 BOARD ASSY
(PWZ2654)

J703 D20PWW0510G
S704 S705 S706 O/C S709 S710
D705 D706

FUNCTION 2 BOARD ASSY
(PWZ2655)

J702 D20PWY0315G
-26V
AC2
AC1
R703 R704
R701 R702
R701~704:6.8

CN12 52147-0310
J11 D20PWY1055G
CN11 52147-1010

SIGNAL ROUTE
: AUDIO SIGNAL ROUTE
: FOCUS SERVO LOOP LINE
: TRACKING SERVO LOOP LINE

⚠ MOTHER BOARD ASSY (PWM1711)

IC301 CXD2500AQ (DECODER)

IC401 ; D/A CONVERTER AND DIGITAL FILTER

IC405 ; LOW PASS FILTER

IC151 CXA1372Q (SERVO CONTROL)

IC351 PD4438A (SYSTEM CONTROL)

Q406 ; INVERTER BUFFER

Q405 ; MUTE DRIVE

Q381,Q382 ; BUFFER

IC201 (3/3) ; LOADING DRIVE

⚠ SUB BOARD ASSY (1/2) (PWX1302)

⚠ POWER BOARD ASSY (PWZ2656)

IC20 ; SYSTEM RESET AND ±5V REGULATOR

D381-D383 : 1SS133X

R701~704 : 6.8

■ PD4438A (IC35

No.	Pin Name	
1	$\overline{\text{RESET}}$	Re
2-11	T0-T9	Dig
12-15	PH3-PH0	Po
16,17	S11,S10	Se
18	VLOAD	Po
19	VPRE	Po
20-25	S9-S4	Se
26	VDD	+
27-30	S3-S0	Se
31-34	P00-P03	Po
35-38	P10-P13	Po
39-42	P20-P23	Po
43-46	P30-P33	Po
47-50	P60-P63	Po
51-54	P40-P43	Po
55	PPO	Pu
56,57	X1,X2	Cl
58	VSS	Gr
59,60	XT1,XT2	Cl
61-64	P50-P53	Po

SIGNAL ROUTE
- ➡: AUDIO SIGNAL ROUTE
- ⇨: FOCUS SERVO LOOP LINE
- ⇶: TRACKING SERVO LOOP LINE
- ⇨: CARRIAGE MOTOR ROUTE
- ➡: LOADING MOTOR ROUTE
- ⇗: SPINDLE MOTOR ROUTE

⚠ MOTHER BOARD ASSY (PWM1711)

IC401 ; D/A CONVERTER AND DIGITAL FILTER

IC405 ; LOW PASS FILTER

Q403,Q404 ; MUTE

Q406 ; INVERTER BUFFER

Q405 ; MUTE DRIVE

Q381,Q382 ; BUFFER

IC351 PD4438A (SYSTEM CONTROL)

SUB BOARD ASSY (2/2) (PWX1302)

CONNECTOR BOARD ASSY (PWZ2657)

Connect to the prescribed components.

⚠ SUB BOARD ASSY (1/2) (PWX1302)

⚠ POWER BOARD ASSY (PWZ2656)

IC20 ; SYSTEM RESET AND ±5V REGULATOR

D381-D383: 1SS133X

■ PD4438A (IC351) ● Pin Function

No.	Pin Name	Function
1	$\overline{\text{RESET}}$	Reset input.
2-11	T0-T9	Digit output.
12-15	PH3-PH0	Port H.
16,17	S11,S10	Segment output.
18	VLOAD	Power supply terminal for FIP driver.
19	VPRE	Power supply terminal for FIP driver.
20-25	S9-S4	Segment output.
26	VDD	+ Power supply terminal.
27-30	S3-S0	Segment output.
31-34	P00-P03	Port 0.
35-38	P10-P13	Port 1.
39-42	P20-P23	Port 2.
43-46	P30-P33	Port 3.
47-50	P60-P63	Port 6.
51-54	P40-P43	Port 4.
55	PPO	Pulse output.
56,57	X1,X2	Clock oscillation terminal of Main system.
58	Vss	Ground
59,60	XT1,XT2	Clock oscillation terminal of Sub system.
61-64	P50-P53	Port 5.

NOTE FOR PCB DIAGRAMS:

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
Q504 (E C B) Q504	Q504 Q504	Transistor
D203 D203	D203	Diode
C513 C513	C513	Capacitor (Polarized)

3. The transistor terminal marked with E or ⊏ shows the emitter.
4. The diode terminal marked with ⓒ or C shows cathode side.
5. The capacitor terminal marked with ⓒ or ⊏ shows negative terminal.

IC301 (CXD2500AQ)

Pin No.	Voltage [V]	Pin No.	Voltage [V]	Pin No.	Voltage [V]	Pin No.	Voltage [V]
1	5.0	21	0	41	NC	61	NC
2	NC	22	3.0	42	5.0	62	NC
3	5.0	23	5.0	43	NC	63	0
4	2.6	24	2.5	44	NC	64	NC
5	NC	25	NC	45	NC	65	0
6	5.0	26	0	46	4.4	66	3.3 to 4.6
7	NC	27	2.5	47	0	67	5.0
8	NC	28	0	48	0	68	0
9	NC	29	NC	49	0 to 0.3	69	2.1 to 3
10	0	30	0	50	NC	70	5.0
11	NC	31	NC	51	NC	71	5.0
12	0	32	2.5	52	0	72	5.0
13	NC	33	5.0	53	2.5	73	5.0
14	NC	34	2.5	54	NC	74	5.0
15	NC	35	2.5	55	0	75	5.0
16	NC	36	NC	56	NC	76	0
17	0	37	NC	57	NC	77	5.0
18	2.4	38	NC	58	NC	78	5.0
19	2.4	39	NC	59	0	79	5.0
20	2.4	40	NC	60	NC	80	0

IC351 (PD4438A)

Pin No.	Voltage [V]	Pin No.	Voltage [V]	Pin No.	Voltage [V]	Pin No.	Voltage [V]
1	5.0	17	4.7	33	5.0	49	NC
2	−25.0	18	−28.0	34	3.9 to 4.2	50	NC
3	NC	19	−5.0	35	5.0	51	5.0
4	−25.0	20	−13.2	36	0	52	5.0
5	−25.0	21	−16.2	37	5.0	53	5.0
6	−25.0	22	-3.4 to -12.1	38	2.3	54	5.0
7	−25.0	23	-3.7 to -7.0	39	0	55	0
8	−25.0	24	-0.6 to -3.9	40	5.0	56	2.4
9	−25.0	25	-8.7 to -15.0	41	NC	57	2.4
10	−25.0	26	5.0	42	0	58	0
11	−25.0	27	NC	43	2.7	59	0
12	0	28	−15.3	44	0	60	NC
13	0	29	-12.0 to -15.0	45	4.0	61	5.0
14	NC	30	-8.7 to -11.7	46	0	62	5.0
15	NC	31	0	47	0	63	0
16	−11.0	32	5.0	48	0	64	5.0

IC151 (CXA1372Q)

Pin No.	Voltage [V]	Pin No.	Voltage [V]
1	0	25	5.0
2	0	26	0
3	0	27	5.0
4	0	28	0
5	0.2	29	0
6	0	30	NC
7	0.2	31	2.5
8	0	32	2.5
9	0	33	5.0
10	5.0	34	−1.7
11	0	35	−1.9
12	0	36	5.0
13	0	37	−0.9
14	0.2 to 0.8	38	−1.9
15	0	39	0
16	−4.0	40	5.0
17	1.3	41	0
18	0	42	0
19	−5.0	43	0
20	5.0	44	0
21	5.0	45	0
22	5.0	46	0
23	5.0	47	0
24	5.0	48	0

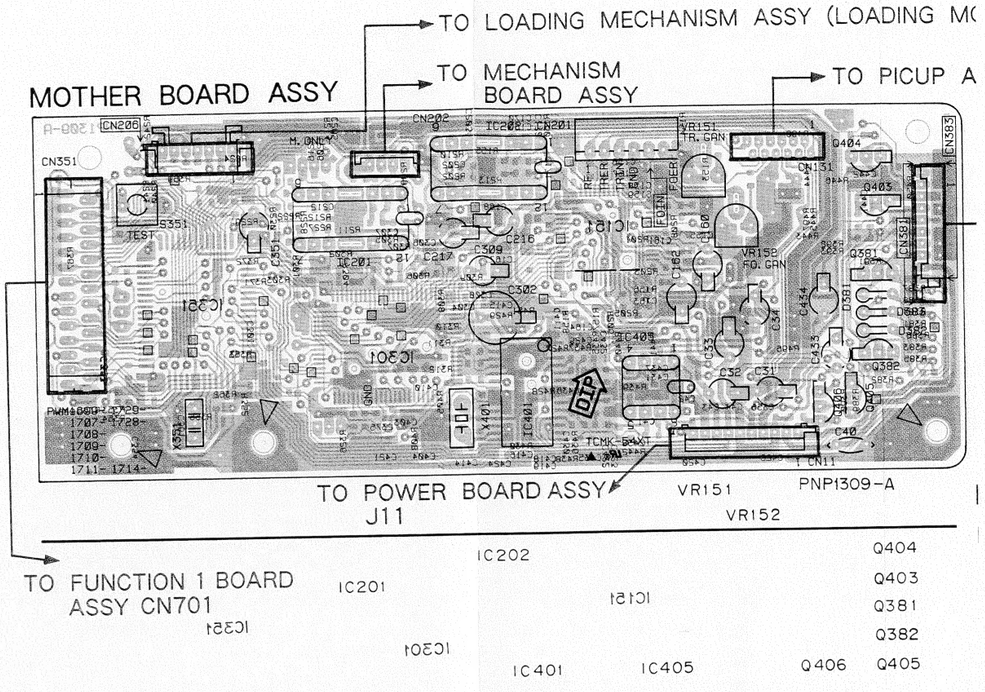
IC20 (M5298P)

Pin No.	Voltage [V]
1	−10.0
2	NC
3	−5.0
4	0
5	−10.0
6	−8.3
7	NC
8	NC
9	5.0
10	NC
11	0.6
12	5.0
13	9.3
14	5.0
15	1.2
16	9.3

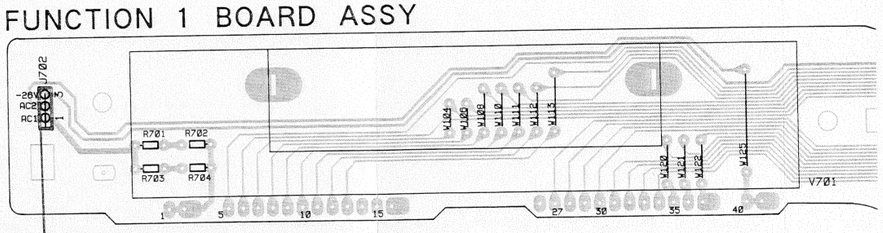
IC401 (TC9237BF)

Pin No.	Voltage [V]	Pin No.	Voltage [V]
1	5.0	15	0
2	0	16	2.5
3	5.0	17	2.8
4	5.0	18	5.0
5	2.8	19	3.0
6	2.5	20	0
7	0	21	0
8	0	22	0
9	2.5	23	0
10	2.8	24	5.0
11	5.0	25	2.5
12	0	26	2.4
13	NC	27	2.5
14	0	28	5.0

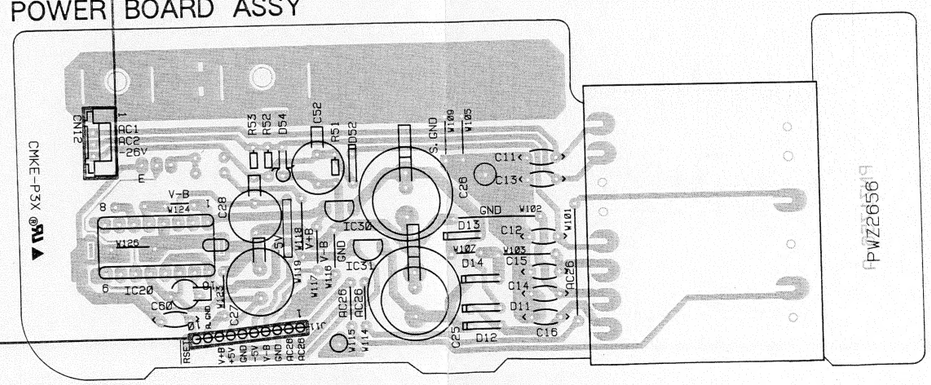
- **This diagram is viewed from the pink colored foil side.**
- **This PCB is double sided.**



FUNCTION 1 BOARD ASSY



POWER BOARD ASSY



IC20 IC30 IC31

TO MOTHER BOARD ASSY CN11

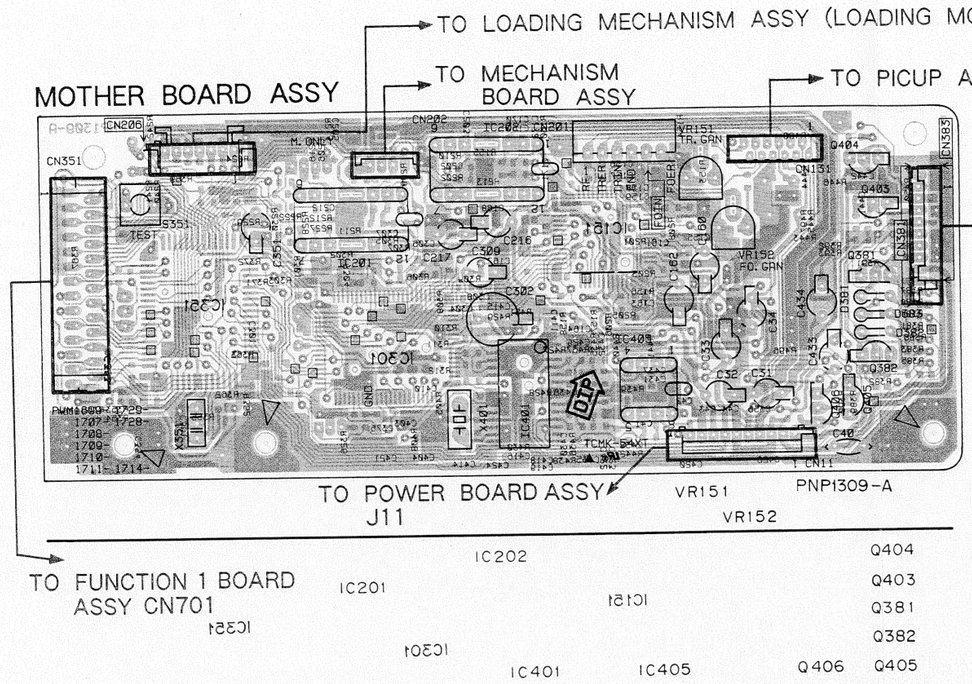
- **This diagram is viewed from the pink colored foil side.**
- **This PCB is double sided.**

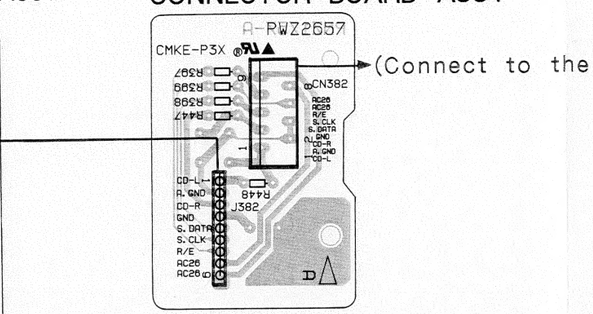
IC351 (PD4438A)

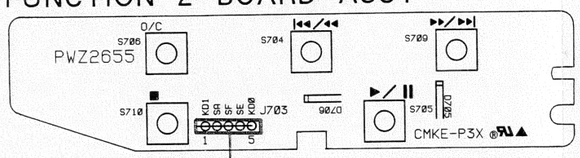
Pin No.	Voltage [V]	Pin No.	Voltage [V]	Pin No.	Voltage [V]	Pin No.	Voltage [V]
1	5. 0	17	4. 7	33	5. 0	49	NC
2	−25. 0	18	−28. 0	34	3.9 to 4.2	50	NC
3	NC	19	−5. 0	35	5. 0	51	5. 0
4	−25. 0	20	−13. 2	36	0	52	5. 0
5	−25. 0	21	−16. 2	37	5. 0	53	5. 0
6	−25. 0	22	-3.4 to -12.1	38	2. 3	54	5. 0
7	−25. 0	23	-3.7 to -7.0	39	0	55	0
8	−25. 0	24	-0.6 to -3.9	40	5. 0	56	2. 4
9	−25. 0	25	-8.7 to -15.0	41	NC	57	2. 4
10	−25. 0	26	5. 0	42	0	58	0
11	−25. 0	27	NC	43	2. 0	59	0
12	0	28	−15. 3	44	0	60	NC
13	0	29	-12.0 to -15.0	45	4. 0	61	5. 0
14	NC	30	-8.7 to -11.7	46	0	62	5. 0
15	NC	31	0	47	0	63	0
16	−11. 0	32	5. 0	48	0	64	5. 0

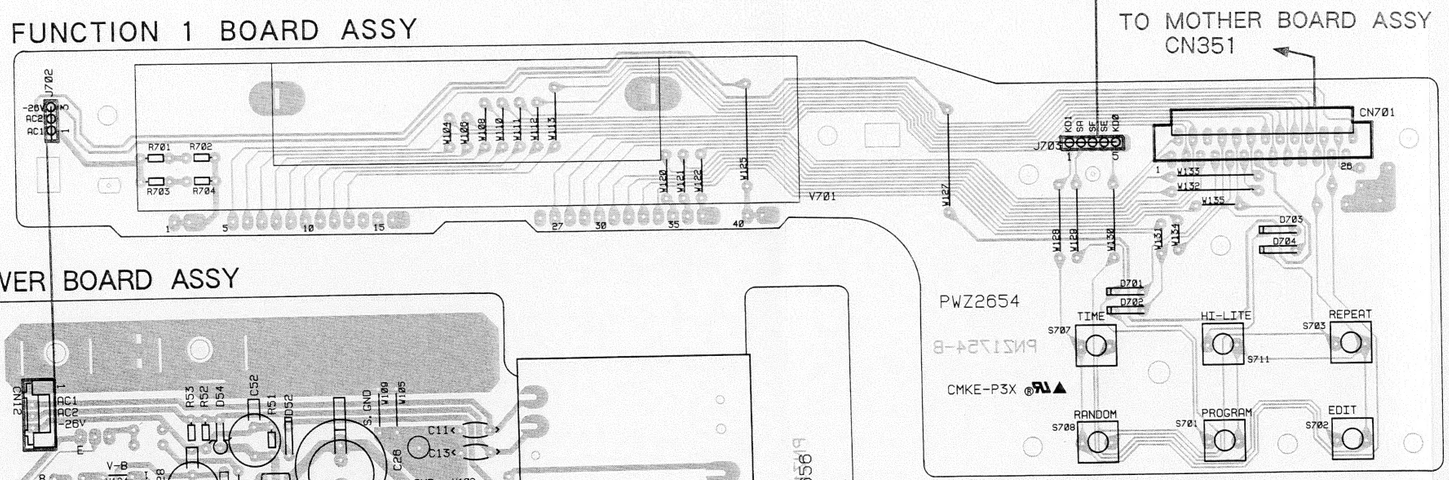
IC301 (TC9237BF)

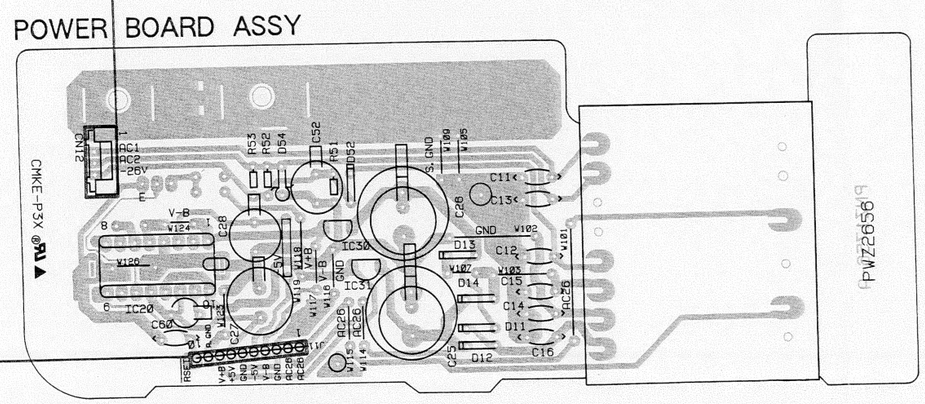
Pin No.	Voltage [V]	Pin No.	Voltage [V]
	5. 0	15	0
	0	16	2. 5
	5. 0	17	2. 8
	5. 0	18	5. 0
	2. 8	19	3. 0
	2. 5	20	0
	0	21	0
	0	22	0
	2. 5	23	0
	2. 8	24	5. 0
	5. 0	25	2. 5
	0	26	2. 4
	NC	27	2. 5
	0	28	5. 0



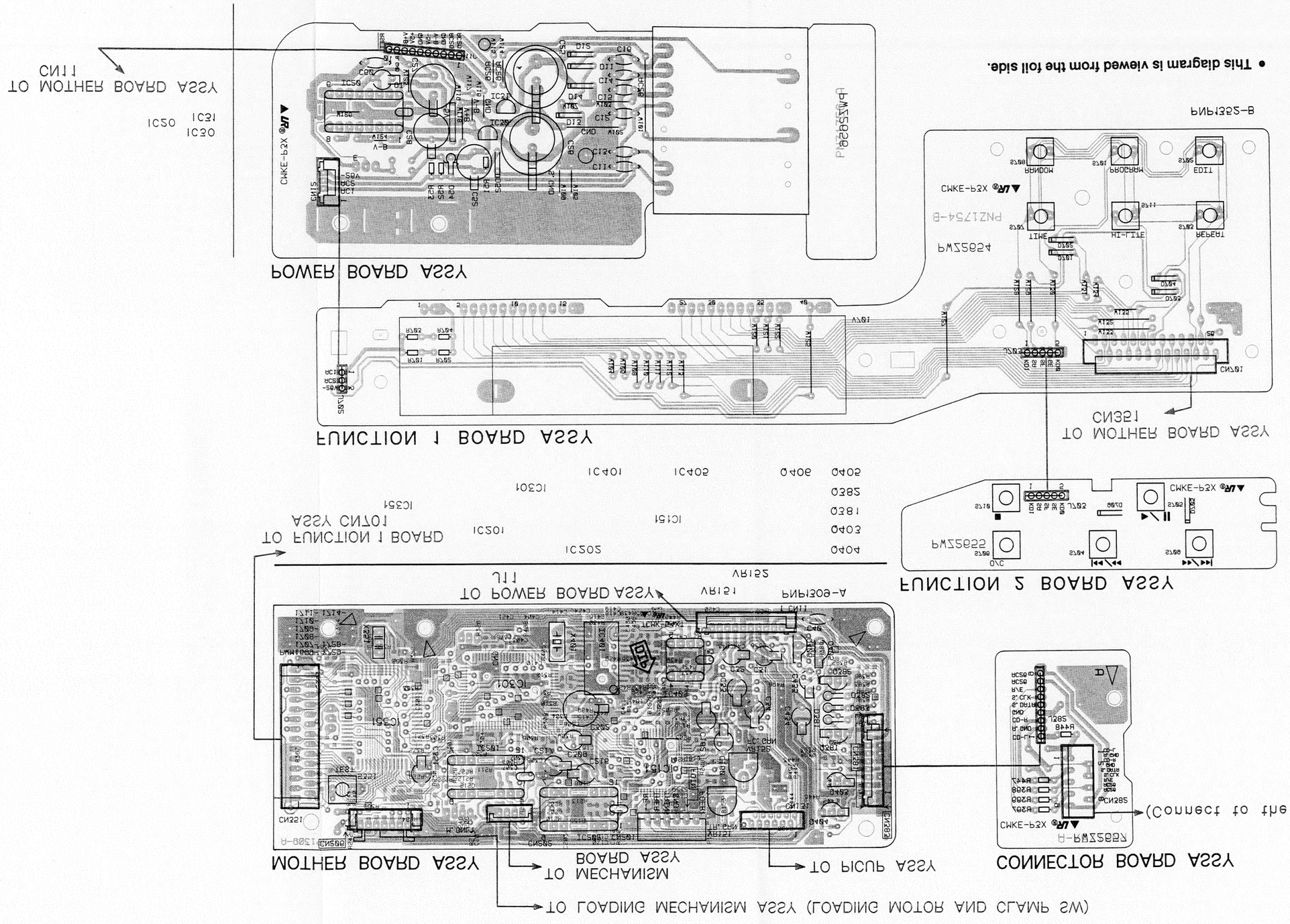


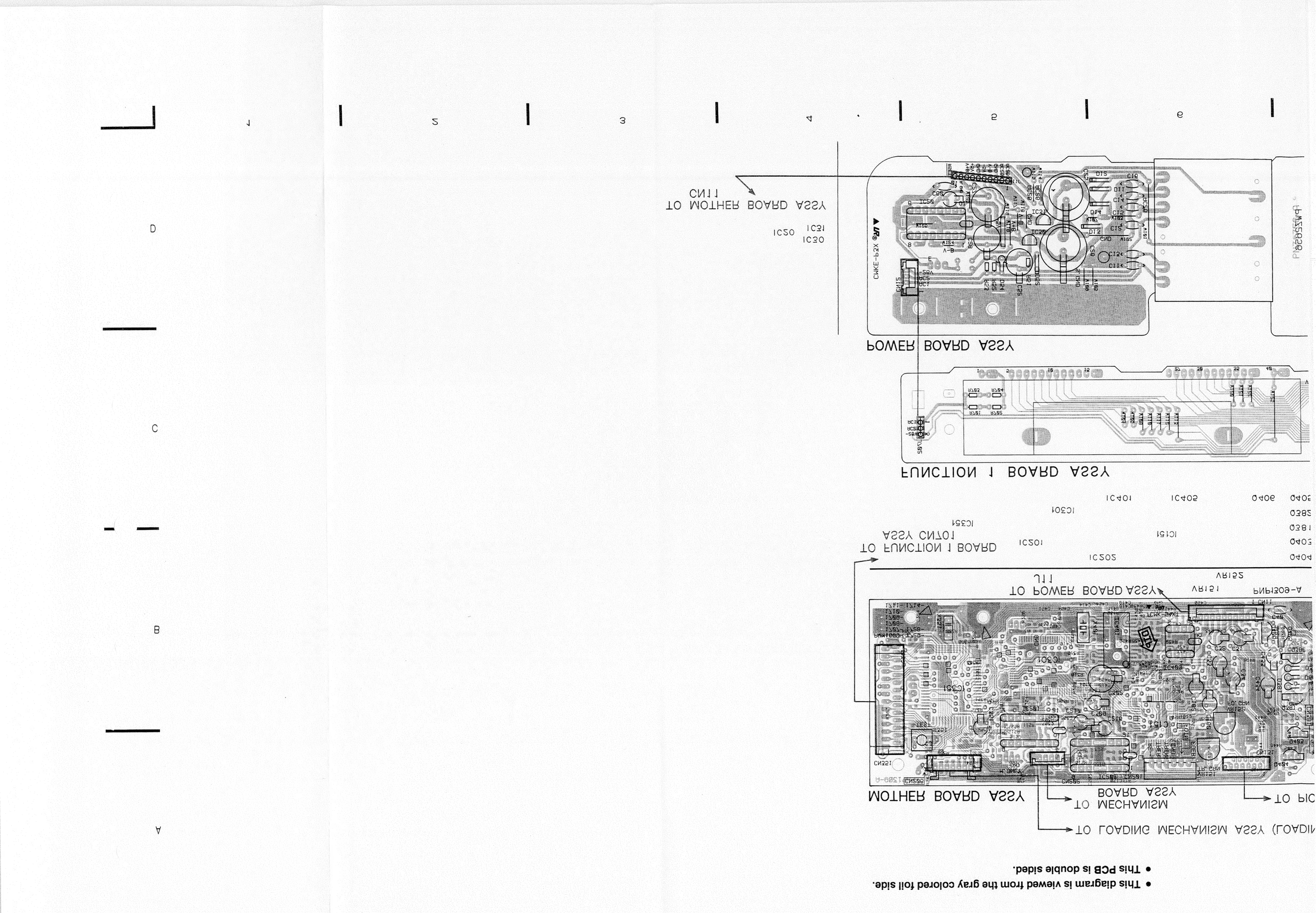






- **This diagram is viewed from the mounted parts side.**


TO MOTHER BOARD ASSY
CN11
IC50
IC31
POWER BOARD ASSY
CWKE-B2X
FUNCTION 1 BOARD ASSY
CN101
TO MOTHER BOARD ASSY
CN121
CWKE-B2X
PNZ175A-B
FUNCTION 2 BOARD ASSY
CWKE-B2X
CONNECTOR BOARD ASSY
(Connect to the prescribed components.)
MOTHER BOARD ASSY
TO MECHANISM BOARD ASSY
TO PICUP ASSY
TO LOADING MECHANISM ASSY (LOADING MOTOR AND CLAMP SW)
TO FUNCTION 1 BOARD ASSY
ASSY CN101
IC301
IC151
IC501
IC505
TO POWER BOARD ASSY
CN11
• This diagram is viewed from the foil side.
• This diagram is viewed from the gray colored foil side.
• This PCB is double sided.



- **This diagram is viewed from the gray colored foil side.**
- **This PCB is double sided.**